51st AVENUE SAFETY IMPROVEMENT STUDY

SECTIONS 20, 21, 28, 29, 32 and 33, T1N, R2E
4, 5, 8, 9, 16, 17, 20, 21, 28, 29, 32 and 33, T1S, R2E

MCDOT TRANSPORTATION PLANNING DIVISION

WORK ORDER NO. 68913

TECHNICAL APPENDIX

SEPTEMBER, 1997

51st AVENUE SAFETY IMPROVEMENT STUDY

SECTIONS 20, 21, 28, 29, 32 and 33, T1N, R2E
4, 5, 8, 9, 16, 17, 20, 21, 28, 29, 32 and 33, T1S, R2E

MCDOT TRANSPORTATION PLANNING DIVISION

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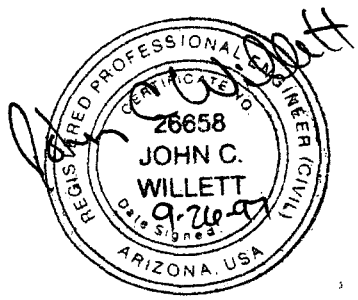
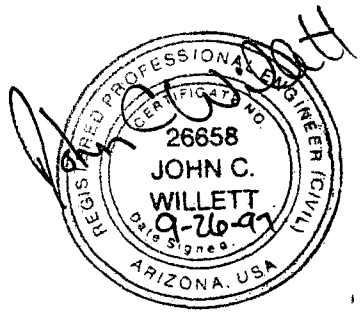


SEPTEMBER, 1997

Technical Appendix

Section	Contents
A	-Peak Hour Background Traffic Volumes - 1997, 2000, 2005 -Casino Traffic Volumes (Peak Hour) -Peak Hour Total Traffic Volumes - 1997, 2000, 2005 -Daily Traffic Volumes (Background) -Daily Traffic Volumes (Total)
B	-HCS - Level of Service Sheets - 1997
C	-HCS - Level of Service Sheets - 2000
D	-HCS - Level of Service Sheets - 2005
E	-Level of Service Criteria -Gila River Indian Community Water and Sewer Plans -Gila River Indian Community Right-of-Way and Utility Plans



1997 Turning Movement Summary - Peak Hour (Total) - Peak Season - No Casino

Intersection	Northbound			Southbound			Eastbound			Westbound			Peak Hour	Percent
	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Factor	Trucks
AM Peak Hour														
51st Ave / Pecos Road	5	205	10	5	243	0	5	0	0	5	0	15		
51st Ave / St. Johns Road	10	230	0	0	243	20	35	0	15					
51st Ave / Casino Entrance		260			195									
51st Ave / Dusty Lane		270	15	20	185					10		15		
51st Ave / Estrella Drive	10	265	10	15	195	10	20		5	5		35		
51st Ave / Elliot Rd	4	283	1	0	192	3	3	1	8	1	4	2	0.94	19.6%
51st Ave / Dobbins Rd	13	224	52	34	166	5	12	45	10	44	32	47	0.86	12.3%
51st Ave / Baseline Rd	30	267	51	73	177	30	33	119	33	22	66	47	0.92	14.8%
51st Ave / Southern Ave	8	281	20	111	239	9	20	71	4	13	32	62	0.97	13.1%
51st Ave / Broadway Rd	26	351	0	0	299	19	46	0	70	0	0	0	0.91	14.9%
												Average	**0.89**	**13.0%**
PM Peak Hour														
51st Ave / Pecos Road	5	240	10	10	280	0	10	5	5	15	5	30		
51st Ave / St. Johns Road	10	270			285	20	35		15					
51st Ave / Casino Entrance		265			260									
51st Ave / Dusty Lane		249	15	20	253					10		15		
51st Ave / Estrella Drive	10	254	10	15	278	10	20		5	5		35		
51st Ave / Elliot Rd	7	238	0	3	306	4	0	1	9	0	0	1	0.93	13.9%
51st Ave / Dobbins Rd	10	207	19	30	255	10	8	28	11	30	31	26	0.94	12.2%
51st Ave / Baseline Rd	23	220	31	71	263	59	32	80	38	40	110	56	0.87	8.1%
51st Ave / Southern Ave	10	252	16	86	339	20	17	40	7	27	115	86	0.96	6.5%
51st Ave / Broadway Rd	38	347	0	0	443	35	15	0	32	0	0	0	0.87	9.5%
												Average	**0.89**	**8.0%**

N-S Growth	5.1%	1997 Start
E-W Growth	6.2%	2000 End

2000 Turning Movement Summary - Peak Hour (Total) - Peak Season - No Casino

Intersection	Northbound			Southbound			Eastbound			Westbound		
	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
AM Peak Hour												
51st Ave / Pecos Road	10	240	15	10	285	0	10	0	0	10	0	20
51st Ave / St. Johns Road	15	270	0	0	285	25	45	0	20	0	0	0
51st Ave / Casino Entrance	0	300	0	0	225	0	0	0	0	0	0	0
51st Ave / Dusty Lane	0	315	20	25	215	0	0	0	0	15	0	20
51st Ave / Estrella Drive	15	310	15	20	225	15	25	0	10	10	0	45
51st Ave / Elliot Rd	5	330	5	0	225	5	5	5	10	5	5	5
51st Ave / Dobbins Rd	15	260	60	40	195	10	15	55	15	55	40	60
51st Ave / Baseline Rd	35	310	60	85	205	35	40	145	40	30	80	60
51st Ave / Southern Ave	10	325	25	130	280	15	25	85	5	20	40	75
51st Ave / Broadway Rd	30	405	0	0	345	25	55	0	85	0	0	0
PM Peak Hour												
51st Ave / Pecos Road	10	280	15	15	325	0	15	10	10	20	10	40
51st Ave / St. Johns Road	15	315	0	0	330	25	45	0	20	0	0	0
51st Ave / Casino Entrance	0	310	0	0	300	0	0	0	0	0	0	0
51st Ave / Dusty Lane	0	290	20	25	295	0	0	0	0	15	0	20
51st Ave / Estrella Drive	15	295	15	20	325	15	25	0	10	10	0	45
51st Ave / Elliot Rd	10	275	0	5	355	5	0	5	15	0	0	5
51st Ave / Dobbins Rd	15	240	25	35	295	15	10	35	15	40	40	35
51st Ave / Baseline Rd	30	255	40	85	305	70	40	95	50	50	135	70
51st Ave / Southern Ave	15	295	20	100	395	25	25	50	10	35	140	105
51st Ave / Broadway Rd	45	405	0	0	515	45	20	0	40	0	0	0

N-S Growth	5.1%	1997 Start
E-W Growth	6.2%	2005 End

2005 Turning Movement Summary - Peak Hour (Total) - Peak Season- No Casino

Intersection	Northbound			Southbound			Eastbound			Westbound		
	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
AM Peak Hour												
51st Ave / Pecos Road	10	290	15	10	345	0	10	0	0	10	0	25
51st Ave / St. Johns Road	15	325	0	0	345	30	55	0	25	0	0	0
51st Ave / Casino Entrance	0	370	0	0	275	0	0	0	0	0	0	0
51st Ave / Dusty Lane	0	385	25	30	265	0	0	0	0	15	0	25
51st Ave / Estrella Drive	15	375	15	25	275	15	30	0	10	10	0	55
51st Ave / Elliot Rd	10	400	5	0	275	5	5	5	15	5	10	5
51st Ave / Dobbins Rd	20	320	75	50	235	10	20	70	15	70	50	75
51st Ave / Baseline Rd	45	380	75	105	250	45	50	180	50	35	100	75
51st Ave / Southern Ave	15	400	30	160	340	15	30	110	10	20	50	95
51st Ave / Broadway Rd	40	495	0	0	425	30	70	0	105	0	0	0
PM Peak Hour												
51st Ave / Pecos Road	10	340	15	15	395	0	15	10	10	25	10	45
51st Ave / St. Johns Road	15	385	0	0	405	30	55	0	25	0	0	0
51st Ave / Casino Entrance	0	375	0	0	370	0	0	0	0	0	0	0
51st Ave / Dusty Lane	0	355	25	30	360	0	0	0	0	15	0	25
51st Ave / Estrella Drive	15	360	15	25	395	15	30	0	10	10	0	55
51st Ave / Elliot Rd	10	340	0	5	435	10	0	5	15	0	0	5
51st Ave / Dobbins Rd	15	295	30	45	360	15	15	45	20	45	50	40
51st Ave / Baseline Rd	35	310	45	100	375	85	50	120	60	60	165	85
51st Ave / Southern Ave	15	355	25	125	480	30	30	60	15	45	175	130
51st Ave / Broadway Rd	55	490	0	0	625	50	25	0	50	0	0	0

Casino Peak Hour Turning Movement Summary

Intersection	Northbound			Southbound			Eastbound			Westbound		
	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
AM Peak Hour												
51st Ave / Pecos Road		10		5	7	5	5					5
51st Ave / St. Johns Road		20			17							
51st Ave / Casino Entrance			20	120						17		85
51st Ave / Dusty Lane		85			120							
51st Ave / Estrella Drive		85			120							
51st Ave / Elliot Rd		85			120							
51st Ave / Dobbins Rd	0	85	0		110				5	5		
51st Ave / Baseline Rd	0	80	5		95				5	10		
51st Ave / Southern Ave	0	80	0		85				5	5		
51st Ave / Broadway Rd		80			85							
PM Peak Hour												
51st Ave / Pecos Road		20		5	20	5	5					5
51st Ave / St. Johns Road		30			30							
51st Ave / Casino Entrance			30	172						30		171
51st Ave / Dusty Lane		171			172							
51st Ave / Estrella Drive		171			172							
51st Ave / Elliot Rd		170			170							
51st Ave / Dobbins Rd	5	160	5		160				5	5		
51st Ave / Baseline Rd	5	145	10		145				5	10		
51st Ave / Southern Ave	5	135	5		135				5	5		
51st Ave / Broadway Rd		135			135							

1997 Turning Movement Summary - Peak Hour (Total) - Peak Season - With Casino

Intersection	Northbound			Southbound			Eastbound			Westbound		
	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
AM Peak Hour												
51st Ave / Pecos Road	5	215	10	10	250	5	10	0	0	5	0	20
51st Ave / St. Johns Road	10	250	0	0	260	20	35	0	15	0	0	0
51st Ave / Casino Entrance	0	260	20	120	195	0	0	0	0	20	0	85
51st Ave / Dusty Lane	0	355	15	20	305	0	0	0	0	10	0	15
51st Ave / Estrella Drive	10	350	10	15	315	10	20	0	5	5	0	35
51st Ave / Elliot Rd	5	370	5	0	315	5	5	5	10	5	5	5
51st Ave / Dobbins Rd	15	310	55	35	280	5	15	45	15	50	35	50
51st Ave / Baseline Rd	30	350	60	75	275	30	35	120	40	35	70	50
51st Ave / Southern Ave	10	365	20	115	325	10	20	75	10	20	35	65
51st Ave / Broadway Rd	30	435	0	0	385	20	50	0	70	0	0	0
PM Peak Hour												
51st Ave / Pecos Road	5	260	10	15	300	5	15	5	5	15	5	35
51st Ave / St. Johns Road	10	300	0	0	315	20	35	0	15	0	0	0
51st Ave / Casino Entrance	0	265	30	175	260	0	0	0	0	30	0	175
51st Ave / Dusty Lane	0	420	15	20	425	0	0	0	0	10	0	15
51st Ave / Estrella Drive	10	425	10	15	450	10	20	0	5	5	0	35
51st Ave / Elliot Rd	10	410	0	5	480	5	0	5	10	0	0	5
51st Ave / Dobbins Rd	15	370	25	30	415	10	10	30	20	35	35	30
51st Ave / Baseline Rd	30	365	45	75	410	60	35	80	45	50	110	60
51st Ave / Southern Ave	15	390	25	90	475	20	20	40	15	35	115	90
51st Ave / Broadway Rd	40	485	0	0	580	35	15	0	35	0	0	0

2000 Turning Movement Summary - Peak Hour (Total) - Peak Season - With Casino

Intersection	Northbound			Southbound			Eastbound			Westbound		
	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
AM Peak Hour												
51st Ave / Pecos Road	10	250	15	15	295	5	15	0	0	10	0	25
51st Ave / St. Johns Road	15	290	0	0	305	25	45	0	20	0	0	0
51st Ave / Casino Entrance	0	300	20	120	225	0	0	0	0	20	0	85
51st Ave / Dusty Lane	0	400	20	25	335	0	0	0	0	15	0	20
51st Ave / Estrella Drive	15	395	15	20	345	15	25	0	10	10	0	45
51st Ave / Elliot Rd	5	415	5	0	345	5	5	5	10	5	5	5
51st Ave / Dobbins Rd	15	345	60	40	305	10	15	55	20	60	40	60
51st Ave / Baseline Rd	35	390	65	85	300	35	40	145	45	40	80	60
51st Ave / Southern Ave	10	405	25	130	365	15	25	85	10	25	40	75
51st Ave / Broadway Rd	30	485	0	0	430	25	55	0	85	0	0	0
PM Peak Hour												
51st Ave / Pecos Road	10	300	15	20	345	5	20	10	10	20	10	45
51st Ave / St. Johns Road	15	345	0	0	360	25	45	0	20	0	0	0
51st Ave / Casino Entrance	0	310	30	175	300	0	0	0	0	30	0	175
51st Ave / Dusty Lane	0	465	20	25	470	0	0	0	0	15	0	20
51st Ave / Estrella Drive	15	470	15	20	500	15	25	0	10	10	0	45
51st Ave / Elliot Rd	10	445	0	5	525	5	0	5	15	0	0	5
51st Ave / Dobbins Rd	20	400	30	35	455	15	10	35	20	45	40	35
51st Ave / Baseline Rd	35	400	50	85	450	70	40	95	55	60	135	70
51st Ave / Southern Ave	20	430	25	100	530	25	25	50	15	40	140	105
51st Ave / Broadway Rd	45	540	0	0	650	45	20	0	40	0	0	0

2005 Turning Movement Summary - Peak Hour (Total) - Peak Season- With Casino

Intersection	Northbound			Southbound			Eastbound			Westbound		
	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt	Lt	Th	Rt
AM Peak Hour												
51st Ave / Pecos Road	10	300	15	15	355	5	15	0	0	10	0	30
51st Ave / St. Johns Road	15	345	0	0	365	30	55	0	25	0	0	0
51st Ave / Casino Entrance	0	370	20	120	275	0	0	0	0	20	0	85
51st Ave / Dusty Lane	0	470	25	30	385	0	0	0	0	15	0	25
51st Ave / Estrella Drive	15	460	15	25	395	15	30	0	10	10	0	55
51st Ave / Elliot Rd	10	485	5	0	395	5	5	5	15	5	10	5
51st Ave / Dobbins Rd	20	405	75	50	345	10	20	70	20	75	50	75
51st Ave / Baseline Rd	45	460	80	105	345	45	50	180	55	45	100	75
51st Ave / Southern Ave	15	480	30	160	425	15	30	110	15	25	50	95
51st Ave / Broadway Rd	40	575	0	0	510	30	70	0	105	0	0	0
PM Peak Hour												
51st Ave / Pecos Road	10	360	15	20	415	5	20	10	10	25	10	50
51st Ave / St. Johns Road	15	415	0	0	435	30	55	0	25	0	0	0
51st Ave / Casino Entrance	0	375	30	175	370	0	0	0	0	30	0	175
51st Ave / Dusty Lane	0	530	25	30	535	0	0	0	0	15	0	25
51st Ave / Estrella Drive	15	535	15	25	570	15	30	0	10	10	0	55
51st Ave / Elliot Rd	10	510	0	5	605	10	0	5	15	0	0	5
51st Ave / Dobbins Rd	20	455	35	45	520	15	15	45	25	50	50	40
51st Ave / Baseline Rd	40	455	55	100	520	85	50	120	65	70	165	85
51st Ave / Southern Ave	20	490	30	125	615	30	30	60	20	50	175	130
51st Ave / Broadway Rd	55	625	0	0	760	50	25	0	50	0	0	0

Peak Season Daily Traffic Volumes - No Casino Traffic

Roadway	From	To	1997 Pk Season Daily Volume		2000 Pk Season Daily Volume		2005 Pk Season Daily Volume	
North/South Counts			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
51st Avenue	S. of Pecos Rd	Pecos Road	2,675	2,675	3,090	3,090	3,770	3,770
51st Avenue	Pecos Road	Dusty Lane	2,995	2,995	3,460	3,460	4,220	4,220
51st Avenue	Dusty Lane	Estrella Drive	2,751	2,783	3,180	3,210	3,880	3,920
51st Avenue	Estrella Drive	Dobbins Road	3,179	3,083	3,670	3,560	4,480	4,350
51st Avenue	Dobbins Road	Baseline Road	3,300	3,361	3,810	3,880	4,650	4,740
51st Avenue	Baseline Road	Southern Avenue	3,664	3,619	4,230	4,180	5,160	5,100
51st Avenue	Southern Avenue	Broadway Road	4,179	4,137	4,820	4,770	5,890	5,830
East/West Counts			Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
Pecos Road	W of 51st Avenue	51st Avenue	115	115	140	140	180	180
Pecos Road	51st Avenue	E of 51st Avenue	390	390	470	470	590	590
St Johns Road	W of 51st Avenue	51st Avenue	515	515	620	620	780	780
Dusty Lane	51st Avenue	E of 51st Avenue	155	155	190	190	240	240
Estrella Drive	W of 51st Avenue	51st Avenue	200	200	240	240	300	300
Estrella Drive	51st Avenue	E of 51st Avenue	350	350	420	420	530	530
Elliot Road	51st Avenue	59th Avenue	184	146	220	180	280	220
Dobbins Road	43rd Avenue	51st Avenue	1,218	1,112	1,450	1,320	1,830	1,670
Dobbins Road	51st Avenue	59th Avenue	469	533	560	640	710	800
Baseline Road	43rd Avenue	51st Avenue	2,216	2,478	2,630	2,940	3,320	3,710
Baseline Road	51st Avenue	59th Avenue	1,915	1,931	2,280	2,300	2,870	2,890
Southern Avenue	43rd Avenue	51st Avenue	2,080	2,488	2,470	2,960	3,120	3,730
Southern Avenue	51st Avenue	59th Avenue	942	1,120	1,120	1,330	1,410	1,680

Peak Season Daily Traffic Volumes - Includes Casino Traffic

Roadway	From	To	Casino Daily Volume		1997 Pk Season Daily Volume		2000 Pk Season Daily Volume		2005 Pk Season Daily Volume	
North/South Counts			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
51st Avenue	S. of Pecos Rd	Pecos Road	230	230	2,905	2,905	3,320	3,320	4,000	4,000
51st Avenue	Pecos Road	Casino Entrance	340	340	3,335	3,335	3,800	3,800	4,560	4,560
51st Avenue	Casino Entrance	Estrella Drive	1,930	1,930	4,685	4,715	5,110	5,140	5,810	5,850
51st Avenue	Estrella Drive	Dobbins Road	1,930	1,930	5,110	5,015	5,600	5,490	6,410	6,280
51st Avenue	Dobbins Road	Baseline Road	1,815	1,815	5,115	5,180	5,625	5,695	6,465	6,555
51st Avenue	Baseline Road	Southern Avenue	1,645	1,645	5,310	5,265	5,875	5,825	6,805	6,745
51st Avenue	Southern Avenue	Broadway Road	1,530	1,530	5,710	5,670	6,350	6,300	7,420	7,360
East/West Counts			Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
Pecos Road	W of 51st Avenue	51st Avenue	57	56	175	175	200	200	240	240
Pecos Road	51st Avenue	E of 51st Avenue	56	57	450	450	530	530	650	650
St Johns Road	W of 51st Avenue	51st Avenue	0	0	515	515	620	620	780	780
Dusty Lane	51st Avenue	E of 51st Avenue	0	0	155	155	190	190	240	240
Estrella Drive	W of 51st Avenue	51st Avenue	0	0	200	200	240	240	300	300
Estrella Drive	51st Avenue	E of 51st Avenue	0	0	350	350	420	420	530	530
Elliot Road	51st Avenue	59th Avenue	0	0	185	150	220	180	280	220
Dobbins Road	43rd Avenue	51st Avenue	60	60	1,280	1,175	1,510	1,380	1,890	1,730
Dobbins Road	51st Avenue	59th Avenue	60	60	530	595	620	700	770	860
Baseline Road	43rd Avenue	51st Avenue	115	115	2,335	2,595	2,745	3,055	3,435	3,825
Baseline Road	51st Avenue	59th Avenue	60	60	1,975	1,995	2,340	2,360	2,930	2,950
Southern Avenue	43rd Avenue	51st Avenue	60	60	2,140	2,550	2,530	3,020	3,180	3,790
Southern Avenue	51st Avenue	59th Avenue	60	60	1,005	1,180	1,180	1,390	1,470	1,740

EMME2 Traffic Model Projections - 2010 Daily Traffic Volumes

Roadway	From	To	Without Casino Traffic				With Casino Traffic			
			2010 Daily Volume w/ bridge		2010 Daily Volume w/o bridge		2010 Daily Volume w/ bridge		2010 Daily Volume w/o bridge	
North/South Projections			Northbound	Southbound	Northbound	Southbound	Northbound	Southbound	Northbound	Southbound
51st Avenue	S. of Pecos Rd	Pecos Road	3,891	3,326	3,699	3,100	4,125	3,560	6,605	6,005
51st Avenue	Pecos Road	Casino Entrance	6,230	5,666	6,909	5,470	6,570	6,010	10,245	8,805
51st Avenue	Casino Entrance	Estrella Drive	10,261	8,833	14,707	14,038	12,195	10,765	19,395	18,755
51st Avenue	Estrella Drive	Dobbins Road	5,807	4,799	14,151	13,512	7,740	6,730	19,265	18,530
51st Avenue	Dobbins Road	Baseline Road	6,977	5,708	10,798	10,918	8,795	7,525	15,915	16,100
51st Avenue	Baseline Road	Southern Avenue	9,275	9,083	11,935	12,734	10,920	10,730	17,245	18,000
51st Avenue	Southern Avenue	Broadway Road	7,879	7,506	12,994	13,739	9,410	9,040	18,705	19,410
East/West Projections			Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
Estrella Drive	51st Avenue	E of 51st Avenue	1,587	1,445	2,561	2,422	1,590	1,445	2,915	2,775
Elliot Road	51st Avenue	59th Avenue	955	958	872	862	955	960	1,060	1,015
Dobbins Road	43rd Avenue	51st Avenue	4,201	4,051	4,321	3,593	4,265	4,115	5,605	4,770
Dobbins Road	51st Avenue	59th Avenue	1,099	1,073	1,038	1,027	1,160	1,135	1,570	1,625
Baseline Road	43rd Avenue	51st Avenue	4,705	3,280	2,792	1,791	4,820	3,395	5,130	4,390
Baseline Road	51st Avenue	59th Avenue	1,720	1,483	1,676	1,640	1,780	1,545	3,655	3,635
Southern Avenue	43rd Avenue	51st Avenue	5,017	4,648	5,869	5,190	5,080	4,710	8,010	7,740
Southern Avenue	51st Avenue	59th Avenue	6,226	5,572	5,768	5,014	6,290	5,635	6,775	6,195

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File Name ..... PE51_97A.HC0
Streets: (N-S) 51st Avenue (E-W) Pecos Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 1997 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	5	215	10	10	250	5	10	0	0	5	0	20
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	220	252
Potential Capacity: (pcph)	1071	1032
Movement Capacity: (pcph)	1071	1032
Prob. of Queue-free State:	0.98	1.00
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	225	255
Potential Capacity: (pcph)	1339	1296
Movement Capacity: (pcph)	1339	1296
Prob. of Queue-free State:	0.99	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.99	0.99
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	490	492
Potential Capacity: (pcph)	603	602
Capacity Adjustment Factor due to Impeding Movements	0.98	0.98
Movement Capacity: (pcph)	593	592
Prob. of Queue-free State:	1.00	1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	488	498
Potential Capacity: (pcph)	552	545
Major LT, Minor TH Impedance Factor:	0.98	0.98
Adjusted Impedance Factor:	0.99	0.99
Capacity Adjustment Factor due to Impeding Movements	0.99	0.97
Movement Capacity: (pcph)	545	527

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	12	527	>	527	> 7.0	> B	
WB	L	6	545	>		>	>	
					893	4.2	A	4.2
WB	R	23	1071	>		>	>	
NB	L	6	1296			2.8	A	0.1
SB	L	12	1339			2.7	A	0.1

Intersection Delay = 0.4

****

File Name ..... PE51_97P.HC0
Streets: (N-S) 51st Avenue (E-W) Pecos Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 1997 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	5	260	10	15	300	5	15	5	5	15	5	35
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	265	302
Potential Capacity: (pcph)	1016	973
Movement Capacity: (pcph)	1016	973
Prob. of Queue-free State:	0.96	0.99
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	270	305
Potential Capacity: (pcph)	1275	1227
Movement Capacity: (pcph)	1275	1227
Prob. of Queue-free State:	0.99	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.98	0.99
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	590	592
Potential Capacity: (pcph)	535	533
Capacity Adjustment Factor due to Impeding Movements	0.98	0.98
Movement Capacity: (pcph)	522	520
Prob. of Queue-free State:	0.99	0.99
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	592	608
Potential Capacity: (pcph)	481	471
Major LT, Minor TH Impedance Factor:	0.97	0.97
Adjusted Impedance Factor:	0.97	0.97
Capacity Adjustment Factor due to Impeding Movements	0.97	0.93
Movement Capacity: (pcph)	465	440

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	18	440				
EB	T	6	520	512	7.5	B	7.5
EB	R	6	973				
WB	L	18	465				
WB	T	6	522	718	5.5	B	5.5
WB	R	41	1016				
NB	L	6	1227		2.9	A	0.1
SB	L	18	1275		2.9	A	0.1

Intersection Delay = 0.8

****

File Name ..... SJ51_97A.HC0
Streets: (N-S) 51st Avenue (E-W) St. Johns Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 1997 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1	0	0	1<	0	1>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes	10	250			260	20	35		15			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	0	0			0	0	0		0			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		270
Potential Capacity: (pcph)		1010
Movement Capacity: (pcph)		1010
Prob. of Queue-free State:		0.98

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		280
Potential Capacity: (pcph)		1261
Movement Capacity: (pcph)		1261
Prob. of Queue-free State:		0.99
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:		0.99

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		530
Potential Capacity: (pcph)		522
Major LT, Minor TH Impedance Factor:		0.99
Adjusted Impedance Factor:		0.99
Capacity Adjustment Factor due to Impeding Movements		0.99
Movement Capacity: (pcph)		516

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	41	516	>	>	>	
				607	6.6	B	6.6
EB	R	18	1010	>	>	>	
NB	L	12	1261		2.9	A	0.1

Intersection Delay = 0.6

****

File Name ..... SJ51_97P.HC0
Streets: (N-S) 51st Avenue (E-W) St. Johns Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 1997 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1	0	0	1<	0	1>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes	10	300			315	20	35		15			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	0	0			0	0	0		0			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		325
Potential Capacity: (pcph)		948
Movement Capacity: (pcph)		948
Prob. of Queue-free State:		0.98
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)		335
Potential Capacity: (pcph)		1187
Movement Capacity: (pcph)		1187
Prob. of Queue-free State:		0.99
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:		0.99
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)		635
Potential Capacity: (pcph)		454
Major LT, Minor TH Impedance Factor:		0.99
Adjusted Impedance Factor:		0.99
Capacity Adjustment Factor due to Impeding Movements		0.99
Movement Capacity: (pcph)		448

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	41	448	>	>	>	
				534	7.6	B	7.6
EB	R	18	948	>	>	>	
NB	L	12	1187		3.1	A	0.1

Intersection Delay = 0.6

****

File Name ..... CS51_97A.HC0
Streets: (N-S) 51st Avenue (E-W) Casino Entrance
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 1997 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	1	1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		260	20	120	195					20		85
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	270	
Potential Capacity: (pcph)	1010	
Movement Capacity: (pcph)	1010	
Prob. of Queue-free State:	0.90	
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	280	
Potential Capacity: (pcph)	1261	
Movement Capacity: (pcph)	1261	
Prob. of Queue-free State:	0.89	
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	585	
Potential Capacity: (pcph)	485	
Major LT, Minor TH Impedance Factor:	0.89	
Adjusted Impedance Factor:	0.89	
Capacity Adjustment Factor due to Impeding Movements	0.89	
Movement Capacity: (pcph)	432	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	23	432		8.8	B	5.3
WB	R	98	1010		3.9	A	
SB	L	139	1261		3.2	A	1.1

Intersection Delay = 1.3

****

File Name ..... CS51_97P.HC0
Streets: (N-S) 51st Avenue (E-W) Casino Entrance
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 1997 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	1	1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		265	30	175	260					30		175
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	280	
Potential Capacity: (pcph)	999	
Movement Capacity: (pcph)	999	
Prob. of Queue-free State:	0.80	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	295	
Potential Capacity: (pcph)	1240	
Movement Capacity: (pcph)	1240	
Prob. of Queue-free State:	0.84	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	715	
Potential Capacity: (pcph)	408	
Major LT, Minor TH Impedance Factor:	0.84	
Adjusted Impedance Factor:	0.84	
Capacity Adjustment Factor due to Impeding Movements	0.84	
Movement Capacity: (pcph)	342	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	35	342		11.7	C	5.3
WB	R	202	999		4.5	A	
SB	L	202	1240		3.5	A	1.3

Intersection Delay = 1.8

****

File Name ..... DU51_97A.HC0
Streets: (N-S) 51st Avenue (E-W) Dusty Lane
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 1997 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	0>	1	0	0	0	0	1>	0<	0
Stop/Yield			N			N						
Volumes		355	15	20	305					10		15
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	362	
Potential Capacity: (pcph)	908	
Movement Capacity: (pcph)	908	
Prob. of Queue-free State:	0.98	
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	370	
Potential Capacity: (pcph)	1142	
Movement Capacity: (pcph)	1142	
Prob. of Queue-free State:	0.98	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:	0.97	
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	688	
Potential Capacity: (pcph)	423	
Major LT, Minor TH Impedance Factor:	0.97	
Adjusted Impedance Factor:	0.97	
Capacity Adjustment Factor due to Impeding Movements	0.97	
Movement Capacity: (pcph)	412	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	12	412	613	6.2	B	6.2
WB	R	18	908				
SB	L	23	1142		3.2	A	0.2

Intersection Delay = 0.3

****

File Name ..... DU51_97P.HC0
Streets: (N-S) 51st Avenue (E-W) Dusty Lane
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 1997 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	0>	1	0	0	0	0	1>	0<	0
Stop/Yield			N			N						
Volumes		420	15	20	425					10		15
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	428	
Potential Capacity: (pcph)	840	
Movement Capacity: (pcph)	840	
Prob. of Queue-free State:	0.98	
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	435	
Potential Capacity: (pcph)	1064	
Movement Capacity: (pcph)	1064	
Prob. of Queue-free State:	0.98	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:	0.97	
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	872	
Potential Capacity: (pcph)	331	
Major LT, Minor TH Impedance Factor:	0.97	
Adjusted Impedance Factor:	0.97	
Capacity Adjustment Factor due to Impeding Movements	0.97	
Movement Capacity: (pcph)	321	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	12	321	510	7.5	B	7.5
WB	R	18	840				
SB	L	23	1064		3.5	A	0.1

Intersection Delay = 0.3

****

File Name ..... ES51_97A.HC0
Streets: (N-S) 51st Avenue (E-W) Estrella Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 1997 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	350	10	15	315	10	20	0	5	5	0	35
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	355	320
Potential Capacity: (pcph)	915	953
Movement Capacity: (pcph)	915	953
Prob. of Queue-free State:	0.96	0.99
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	360	325
Potential Capacity: (pcph)	1155	1200
Movement Capacity: (pcph)	1155	1200
Prob. of Queue-free State:	0.98	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.98	0.99
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	705	705
Potential Capacity: (pcph)	465	465
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	450	450
Prob. of Queue-free State:	1.00	1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	702	718
Potential Capacity: (pcph)	415	406
Major LT, Minor TH Impedance Factor:	0.97	0.97
Adjusted Impedance Factor:	0.97	0.97
Capacity Adjustment Factor due to Impeding Movements	0.97	0.93
Movement Capacity: (pcph)	402	378

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	23	378	432	8.9	B	8.9
EB	R	6	953				
WB	L	6	402	787	4.9	A	4.9
WB	R	41	915				
NB	L	12	1200		3.0	A	0.1
SB	L	18	1155		3.2	A	0.1

Intersection Delay = 0.6

****

File Name ..... ES51_97P.HC0
Streets: (N-S) 51st Avenue (E-W) Estrella Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 1997 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	425	10	15	450	10	20	0	5	5	0	35
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	430	455
Potential Capacity: (pcph)	838	814
Movement Capacity: (pcph)	838	814
Prob. of Queue-free State:	0.95	0.99
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	435	460
Potential Capacity: (pcph)	1064	1035
Movement Capacity: (pcph)	1064	1035
Prob. of Queue-free State:	0.98	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.98	0.98
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	915	915
Potential Capacity: (pcph)	361	361
Capacity Adjustment Factor due to Impeding Movements	0.96	0.96
Movement Capacity: (pcph)	346	346
Prob. of Queue-free State:	1.00	1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	912	928
Potential Capacity: (pcph)	314	307
Major LT, Minor TH Impedance Factor:	0.96	0.96
Adjusted Impedance Factor:	0.97	0.97
Capacity Adjustment Factor due to Impeding Movements	0.96	0.92
Movement Capacity: (pcph)	302	283

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Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	23	283	>		>	>	
					327	12.1	C	12.1
EB	R	6	814	>		>	>	
WB	L	6	302	>		>	>	
					683	5.7	B	5.7
WB	R	41	838	>		>	>	
NB	L	12	1035			3.5	A	0.1
SB	L	18	1064			3.4	A	0.1

Intersection Delay = 0.6

****

File Name ..... EL51_97A.HC0
Streets: (N-S) 51st Avenue (E-W) Elliot Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 1997 Peak Season - (7-9:00 AM) with Casino

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	5	370	5	0	315	5	5	5	10	5	5	5
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	13	13	13	13	13	13	13	13	13	13	13	13
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	372	318
Potential Capacity: (pcph)	897	955
Movement Capacity: (pcph)	897	955
Prob. of Queue-free State:	0.99	0.99
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	375	320
Potential Capacity: (pcph)	1136	1207
Movement Capacity: (pcph)	1136	1207
Prob. of Queue-free State:	1.00	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	1.00	0.99
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	698	698
Potential Capacity: (pcph)	469	469
Capacity Adjustment Factor due to Impeding Movements	0.99	0.99
Movement Capacity: (pcph)	465	465
Prob. of Queue-free State:	0.98	0.98
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	702	700
Potential Capacity: (pcph)	415	416
Major LT, Minor TH Impedance Factor:	0.98	0.98
Adjusted Impedance Factor:	0.98	0.98
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	403	406

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	7	406				
EB	T	7	465	580	6.5	B	6.5
EB	R	12	955				
WB	L	7	403				
WB	T	7	465	522	7.2	B	7.2
WB	R	7	897				
NB	L	7	1207		3.0	A	0.0

Intersection Delay = 0.3

****

File Name ..... EL51_97P.HC0
Streets: (N-S) 51st Avenue (E-W) Elliot Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 1997 Peak Season - (4-6:00 PM) with Casino

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	410	0	5	480	5	0	5	10	0	0	5
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	8	8	8	8	8	8	8	8	8	8	8	8
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	410	482
Potential Capacity: (pcph)	858	789
Movement Capacity: (pcph)	858	789
Prob. of Queue-free State:	0.99	0.98
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	410	485
Potential Capacity: (pcph)	1093	1007
Movement Capacity: (pcph)	1093	1007
Prob. of Queue-free State:	0.99	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.99	0.98
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	910	908
Potential Capacity: (pcph)	363	364
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	353	354
Prob. of Queue-free State:	1.00	0.98
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	915	910
Potential Capacity: (pcph)	313	315
Major LT, Minor TH Impedance Factor:	0.95	0.97
Adjusted Impedance Factor:	0.96	0.98
Capacity Adjustment Factor due to Impeding Movements	0.95	0.97
Movement Capacity: (pcph)	297	306

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay		LOS	Delay By App
EB	T	7	354	>		>		>	6.9
EB	R	12	789	>	543	>	6.9	> B	
WB	R	7	858	>	858	>	4.2	> A	
NB	L	12	1007			3.6		A	0.1
SB	L	7	1093			3.3		A	0.0

Intersection Delay = 0.2

****

File Name ..... DO51_97A.HC0
Streets: (N-S) 51st Avenue (E-W) Dobbins Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 1997 AM Peak Hour-Pk Season-Existing Geometry

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	0>	1<	0	0>	1<	0
Volumes	15	310	55	35	280	5	15	45	15	50	35	50
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	13	13	13	13	13	13	13	13	13	13	13	13
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

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Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	17	39	17	56
RT Flow Rate	62	6	17	56
Approach Flow Rate	427	360	85	151
Proportion LT	0.04	0.11	0.20	0.37
Proportion RT	0.15	0.02	0.20	0.37
Opposing Approach Flow Rate	360	427	151	85
Conflicting Approaches Flow Rate	236	236	787	787
Proportion, Subject Approach Flow Rate	0.42	0.35	0.08	0.15
Proportion, Opposing Approach Flow Rate	0.35	0.42	0.15	0.08
Lanes on Subject Approach	2	2	1	1
Lanes on Opposing Approach	2	2	1	1
LT, Opposing Approach	39	17	56	17
RT, Opposing Approach	6	62	56	17
LT, Conflicting Approaches	73	73	56	56
RT, Conflicting Approaches	73	73	68	68
Proportion LT, Opposing Approach	0.11	0.04	0.37	0.20
Proportion RT, Opposing Approach	0.02	0.15	0.37	0.20
Proportion LT, Conflicting Approaches	0.31	0.31	0.07	0.07
Proportion RT, Conflicting Approaches	0.31	0.31	0.09	0.09
Approach Capacity	835	861	254	290

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	427	835	0.51	7.0	B
SB	360	861	0.42	4.9	A
EB	85	254	0.33	3.6	A
WB	151	290	0.52	7.2	B

Intersection Delay = 6.00
Level of Service (Intersection) = B

****

File Name ..... DO51_97P.HC0
Streets: (N-S) 51st Avenue (E-W) Dobbins Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 1997 PM Peak Hour-Pk Season-Existing Geometry

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	0>	1<	0	0>	1<	0
Volumes	15	370	25	30	415	10	10	30	20	35	35	30
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	8	8	8	8	8	8	8	8	8	8	8	8
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

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Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	17	34	11	39
RT Flow Rate	28	11	22	34
Approach Flow Rate	461	511	67	112
Proportion LT	0.04	0.07	0.16	0.35
Proportion RT	0.06	0.02	0.33	0.30
Opposing Approach Flow Rate	511	461	112	67
Conflicting Approaches Flow Rate	179	179	972	972
Proportion, Subject Approach Flow Rate	0.40	0.44	0.06	0.10
Proportion, Opposing Approach Flow Rate	0.44	0.40	0.10	0.06
Lanes on Subject Approach	2	2	1	1
Lanes on Opposing Approach	2	2	1	1
LT, Opposing Approach	34	17	39	11
RT, Opposing Approach	11	28	34	22
LT, Conflicting Approaches	50	50	51	51
RT, Conflicting Approaches	56	56	39	39
Proportion LT, Opposing Approach	0.07	0.04	0.35	0.16
Proportion RT, Opposing Approach	0.02	0.06	0.30	0.33
Proportion LT, Conflicting Approaches	0.28	0.28	0.05	0.05
Proportion RT, Conflicting Approaches	0.31	0.31	0.04	0.04
Approach Capacity	906	935	179	251

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	461	906	0.51	6.9	B
SB	511	935	0.55	8.0	B
EB	67	179	0.37	4.2	A
WB	112	251	0.45	5.5	B

Intersection Delay = 7.08
Level of Service (Intersection) = B

****

File Name ..... BA51_97A.HC0
Streets: (N-S) 51st Avenue (E-W) Baseline Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 1997 Peak Season - (7-9:00 AM) with Casino

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	1	1<	0	1	1<	0
Volumes	30	350	60	75	275	30	35	120	40	35	70	50
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

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Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	34	84	39	39
RT Flow Rate	67	34	45	56
Approach Flow Rate	494	427	219	174
Proportion LT	0.07	0.20	0.18	0.22
Proportion RT	0.14	0.08	0.21	0.32
Opposing Approach Flow Rate	427	494	174	219
Conflicting Approaches Flow Rate	393	393	921	921
Proportion, Subject Approach Flow Rate	0.38	0.32	0.17	0.13
Proportion, Opposing Approach Flow Rate	0.32	0.38	0.13	0.17
Lanes on Subject Approach	2	2	2	2
Lanes on Opposing Approach	2	2	2	2
LT, Opposing Approach	84	34	39	39
RT, Opposing Approach	34	67	56	45
LT, Conflicting Approaches	78	78	118	118
RT, Conflicting Approaches	101	101	101	101
Proportion LT, Opposing Approach	0.20	0.07	0.22	0.18
Proportion RT, Opposing Approach	0.08	0.14	0.32	0.21
Proportion LT, Conflicting Approaches	0.20	0.20	0.13	0.13
Proportion RT, Conflicting Approaches	0.26	0.26	0.11	0.11
Approach Capacity	778	812	451	431

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Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	494	778	0.64	11.2	C
SB	427	812	0.53	7.4	B
EB	219	451	0.49	6.3	B
WB	174	431	0.40	4.6	A

Intersection Delay = 8.26
Level of Service (Intersection) = B

****

File Name ..... BA51_97P.HC0
Streets: (N-S) 51st Avenue (E-W) Baseline Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 1997 Peak Season - (4-6:00 PM) with Casino

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	1	1<	0	1	1<	0
Volumes	30	365	45	75	410	60	35	80	45	50	110	60
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

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Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	34	84	39	56
RT Flow Rate	51	67	51	67
Approach Flow Rate	495	612	180	247
Proportion LT	0.07	0.14	0.22	0.23
Proportion RT	0.10	0.11	0.28	0.27
Opposing Approach Flow Rate	612	495	247	180
Conflicting Approaches Flow Rate	427	427	1107	1107
Proportion, Subject Approach Flow Rate	0.32	0.40	0.12	0.16
Proportion, Opposing Approach Flow Rate	0.40	0.32	0.16	0.12
Lanes on Subject Approach	2	2	2	2
Lanes on Opposing Approach	2	2	2	2
LT, Opposing Approach	84	34	56	39
RT, Opposing Approach	67	51	67	51
LT, Conflicting Approaches	95	95	118	118
RT, Conflicting Approaches	118	118	118	118
Proportion LT, Opposing Approach	0.14	0.07	0.23	0.22
Proportion RT, Opposing Approach	0.11	0.10	0.27	0.28
Proportion LT, Conflicting Approaches	0.22	0.22	0.11	0.11
Proportion RT, Conflicting Approaches	0.28	0.28	0.11	0.11
Approach Capacity	799	841	416	435

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Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	495	799	0.62	10.5	C
SB	612	841	0.73	15.9	C
EB	*	*	*	*	*
WB	*	*	*	*	*

Intersection Delay = *
Level of Service (Intersection) = *

*The range limits on this approach exceed the maximum.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 07-17-1997

Kirkham, Michael & Associates

Streets: (E-W) Southern Avenue (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: SO51_97A.HC9
Area Type: Other 6-23-97 AM Peak
Comment: 1997 Pk Season with Casino-Existing Geometry

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	1	<	1	1	1
Volumes	20	75	10	20	35	65	10	365	20	115	325	10
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left *			
Thru	*				Thru *			
Right	*				Right *			
Peds	*				Peds *			
WB Left	*				SB Left *			
Thru	*				Thru *			
Right	*				Right *			
Peds	*				Peds *			
NB Right					EB Right			
SB Right					WB Right			
Green	30.0A				Green 52.0A			
Yellow/AR	4.0				Yellow/AR 4.0			

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	397	1154	0.055	0.344	12.7	B	13.2	B
	TR	569	1651	0.167	0.344	13.3	B		
WB	L	422	1226	0.052	0.344	12.7	B	13.4	B
	TR	523	1517	0.214	0.344	13.5	B		
NB	L	356	605	0.031	0.589	5.0	A	6.8	B
	TR	983	1669	0.440	0.589	6.8	B		
SB	L	282	479	0.457	0.589	7.6	B	6.7	B
	T	990	1681	0.369	0.589	6.4	B		
	R	842	1429	0.013	0.589	5.0	A		

Intersection Delay = 8.1 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.368

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 07-17-1997
Kirkham, Michael & Associates

Streets: (E-W) Southern Avenue (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: SO51_97P.HC9
Area Type: Other 6-23-97 PM Peak
Comment: 1997 Pk Season with Casino-Existing Geometry

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	1	<	1	1	1
Volumes	20	40	15	35	115	90	15	390	25	90	475	20
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
WB Left	*				SB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
NB Right					EB Right				
SB Right					WB Right				
Green	30.0A				Green	52.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	270	784	0.081	0.344	12.9	B	12.9	B
	TR	581	1688	0.107	0.344	13.0	B		
WB	L	484	1406	0.081	0.344	12.9	B	14.5	B
	TR	566	1643	0.406	0.344	14.8	B		
NB	L	197	335	0.086	0.589	5.2	B	6.9	B
	TR	1026	1743	0.454	0.589	6.9	B		
SB	L	256	434	0.395	0.589	6.9	B	7.3	B
	T	1036	1759	0.516	0.589	7.4	B		
	R	880	1495	0.025	0.589	5.0	A		

Intersection Delay = 8.8 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.475

****

File Name ..... BR51_97A.HC0
Streets: (N-S) 51st Avenue (E-W) Broadway Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 1997 Peak Season - (7-9:00 AM) with Casino

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1<	0	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	30	435			385	20	50		70			
PHF	.89	.89			.89	.89	.89		.89			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	13	13			13	13	13		13			
PCE's	1.13	1.13			1.13	1.13	1.13		1.13			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		395
Potential Capacity: (pcph)		873
Movement Capacity: (pcph)		873
Prob. of Queue-free State:		0.90

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		405
Potential Capacity: (pcph)		1099
Movement Capacity: (pcph)		1099
Prob. of Queue-free State:		0.97

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		860
Potential Capacity: (pcph)		336
Major LT, Minor TH Impedance Factor:		0.97
Adjusted Impedance Factor:		0.97
Capacity Adjustment Factor due to Impeding Movements		0.97
Movement Capacity: (pcph)		324

****

Intersection Performance Summary

Movement	FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB L	63	324		13.8	C	
						10.2
EB R	89	873		4.6	A	
NB L	38	1099		3.4	A	0.2

Intersection Delay = 1.4

****

File Name ..... BR51_97P.HC0
Streets: (N-S) 51st Avenue (E-W) Broadway Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 1997 Peak Season - (4-6:00 PM) with Casino

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1<	0	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	40	485			580	35	15		35			
PHF	.89	.89			.89	.89	.89		.89			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	8	8			8	8	8		8			
PCE's	1.08	1.08			1.08	1.08	1.08		1.08			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		598
Potential Capacity: (pcph)		689
Movement Capacity: (pcph)		689
Prob. of Queue-free State:		0.94

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		615
Potential Capacity: (pcph)		873
Movement Capacity: (pcph)		873
Prob. of Queue-free State:		0.94

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1122
Potential Capacity: (pcph)		237
Major LT, Minor TH Impedance Factor:		0.94
Adjusted Impedance Factor:		0.94
Capacity Adjustment Factor due to Impeding Movements		0.94
Movement Capacity: (pcph)		224

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	18	224		17.5	C	
							10.2
EB	R	42	689		5.6	B	
NB	L	49	873		4.4	A	0.3

Intersection Delay = 0.7

****

File Name ..... PE51_00A.HC0
Streets: (N-S) 51st Avenue (E-W) Pecos Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2000 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	250	15	15	295	5	15	0	0	10	0	25
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	258	298
Potential Capacity: (pcph)	1025	978
Movement Capacity: (pcph)	1025	978
Prob. of Queue-free State:	0.97	1.00
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	265	300
Potential Capacity: (pcph)	1282	1233
Movement Capacity: (pcph)	1282	1233
Prob. of Queue-free State:	0.99	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.98	0.99
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	582	588
Potential Capacity: (pcph)	540	536
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	524	520
Prob. of Queue-free State:	1.00	1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	580	592
Potential Capacity: (pcph)	489	481
Major LT, Minor TH Impedance Factor:	0.97	0.97
Adjusted Impedance Factor:	0.98	0.98
Capacity Adjustment Factor due to Impeding Movements	0.98	0.95
Movement Capacity: (pcph)	478	457

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	18	457	>	457	> 8.2	> B	
WB	L	12	478	>		>	>	
					768	5.0	A	5.0
WB	R	29	1025	>		>	>	
NB	L	12	1233			2.9	A	0.1
SB	L	18	1282			2.8	A	0.1

Intersection Delay = 0.6

****

File Name ..... PE51_00P.HC0
Streets: (N-S) 51st Avenue (E-W) Pecos Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2000 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	300	15	20	345	5	20	10	10	20	10	45
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	308	348
Potential Capacity: (pcph)	967	923
Movement Capacity: (pcph)	967	923
Prob. of Queue-free State:	0.95	0.99
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	315	350
Potential Capacity: (pcph)	1213	1168
Movement Capacity: (pcph)	1213	1168
Prob. of Queue-free State:	0.98	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.98	0.99
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	688	692
Potential Capacity: (pcph)	475	473
Capacity Adjustment Factor due to Impeding Movements	0.96	0.96
Movement Capacity: (pcph)	457	455
Prob. of Queue-free State:	0.97	0.97
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	695	712
Potential Capacity: (pcph)	419	410
Major LT, Minor TH Impedance Factor:	0.94	0.94
Adjusted Impedance Factor:	0.95	0.95
Capacity Adjustment Factor due to Impeding Movements	0.94	0.90
Movement Capacity: (pcph)	394	369

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	23	369				
EB	T	12	455	462	8.7	B	8.7
EB	R	12	923				
WB	L	23	394				
WB	T	12	457	629	6.6	B	6.6
WB	R	52	967				
NB	L	12	1168		3.1	A	0.1
SB	L	23	1213		3.0	A	0.2

Intersection Delay = 1.2

****

File Name ..... SJ51_00A.HC0
Streets: (N-S) 51st Avenue (E-W) St. Johns Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2000 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1	0	0	1<	0	1>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes	15	290			305	25	45		20			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	0	0			0	0	0		0			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		318
Potential Capacity: (pcph)		955
Movement Capacity: (pcph)		955
Prob. of Queue-free State:		0.98

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		330
Potential Capacity: (pcph)		1194
Movement Capacity: (pcph)		1194
Prob. of Queue-free State:		0.98
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:		0.98

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		622
Potential Capacity: (pcph)		462
Major LT, Minor TH Impedance Factor:		0.98
Adjusted Impedance Factor:		0.98
Capacity Adjustment Factor due to Impeding Movements		0.98
Movement Capacity: (pcph)		453

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	52	453	540	7.7	B	7.7
EB	R	23	955				
NB	L	18	1194		3.1	A	0.1

Intersection Delay = 0.8

****

File Name ..... SJ51_00P.HC0
Streets: (N-S) 51st Avenue (E-W) St. Johns Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2000 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1	0	0	1<	0	1>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes	15	345			360	25	45		20			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	0	0			0	0	0		0			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		372
Potential Capacity: (pcph)		897
Movement Capacity: (pcph)		897
Prob. of Queue-free State:		0.97

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		385
Potential Capacity: (pcph)		1124
Movement Capacity: (pcph)		1124
Prob. of Queue-free State:		0.98
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:		0.98

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		732
Potential Capacity: (pcph)		399
Major LT, Minor TH Impedance Factor:		0.98
Adjusted Impedance Factor:		0.98
Capacity Adjustment Factor due to Impeding Movements		0.98
Movement Capacity: (pcph)		391

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	52	391	>	>	>	
				473	9.0	B	9.0
EB	R	23	897	>	>	>	
NB	L	18	1124		3.3	A	0.1

Intersection Delay = 0.8

****

File Name ..... CS51_00A.HC0
Streets: (N-S) 51st Avenue (E-W) Casino Entrance
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2000 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	1	1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		300	20	120	225					20		85
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	310	
Potential Capacity: (pcph)	964	
Movement Capacity: (pcph)	964	
Prob. of Queue-free State:	0.90	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	320	
Potential Capacity: (pcph)	1207	
Movement Capacity: (pcph)	1207	
Prob. of Queue-free State:	0.88	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	655	
Potential Capacity: (pcph)	442	
Major LT, Minor TH Impedance Factor:	0.88	
Adjusted Impedance Factor:	0.88	
Capacity Adjustment Factor due to Impeding Movements	0.88	
Movement Capacity: (pcph)	391	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	23	391		9.8	B	5.3
WB	R	98	964		4.2	A	
SB	L	139	1207		3.4	A	1.1

Intersection Delay = 1.2

****

File Name ..... CS51_00P.HC0
Streets: (N-S) 51st Avenue (E-W) Casino Entrance
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2000 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	1	1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		310	30	175	300					30		175
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	325	
Potential Capacity: (pcph)	948	
Movement Capacity: (pcph)	948	
Prob. of Queue-free State:	0.79	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	340	
Potential Capacity: (pcph)	1181	
Movement Capacity: (pcph)	1181	
Prob. of Queue-free State:	0.83	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	800	
Potential Capacity: (pcph)	364	
Major LT, Minor TH Impedance Factor:	0.83	
Adjusted Impedance Factor:	0.83	
Capacity Adjustment Factor due to Impeding Movements	0.83	
Movement Capacity: (pcph)	302	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	35	302		13.5	C	
							5.3
WB	R	202	948		4.8	A	
SB	L	202	1181		3.7	A	1.3

Intersection Delay = 1.7

****

File Name ..... DU51_00A.HC0
Streets: (N-S) 51st Avenue (E-W) Dusty Lane
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2000 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	0>	1	0	0	0	0	1>	0<	0
Stop/Yield			N			N						
Volumes		400	20	25	335					15		20
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	410	
Potential Capacity: (pcph)	858	
Movement Capacity: (pcph)	858	
Prob. of Queue-free State:	0.97	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	420	
Potential Capacity: (pcph)	1081	
Movement Capacity: (pcph)	1081	
Prob. of Queue-free State:	0.97	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:	0.97	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	770	
Potential Capacity: (pcph)	379	
Major LT, Minor TH Impedance Factor:	0.97	
Adjusted Impedance Factor:	0.97	
Capacity Adjustment Factor due to Impeding Movements	0.97	
Movement Capacity: (pcph)	366	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	18	366	>		>	>	
					540	7.2	B	7.2
WB	R	23	858	>		>	>	
SB	L	29	1081			3.4	A	0.2

Intersection Delay = 0.4

****

File Name ..... DU51_00P.HC0
Streets: (N-S) 51st Avenue (E-W) Dusty Lane
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2000 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	0>	1	0	0	0	0	1>	0<	0
Stop/Yield			N			N						
Volumes		465	20	25	470					15		20
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	475	
Potential Capacity: (pcph)	796	
Movement Capacity: (pcph)	796	
Prob. of Queue-free State:	0.97	
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	485	
Potential Capacity: (pcph)	1007	
Movement Capacity: (pcph)	1007	
Prob. of Queue-free State:	0.97	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:	0.96	
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	970	
Potential Capacity: (pcph)	290	
Major LT, Minor TH Impedance Factor:	0.96	
Adjusted Impedance Factor:	0.96	
Capacity Adjustment Factor due to Impeding Movements	0.96	
Movement Capacity: (pcph)	278	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	18	278	438	9.1	B	9.1
WB	R	23	796				
SB	L	29	1007		3.7	A	0.2

Intersection Delay = 0.4

****

File Name ..... ES51_00A.HC0
Streets: (N-S) 51st Avenue (E-W) Estrella Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2000 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	15	395	15	20	345	15	25	0	10	10	0	45
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	402	352
Potential Capacity: (pcph)	866	918
Movement Capacity: (pcph)	866	918
Prob. of Queue-free State:	0.94	0.99
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	410	360
Potential Capacity: (pcph)	1093	1155
Movement Capacity: (pcph)	1093	1155
Prob. of Queue-free State:	0.98	0.98
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.97	0.98
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	798	798
Potential Capacity: (pcph)	416	416
Capacity Adjustment Factor due to Impeding Movements	0.95	0.95
Movement Capacity: (pcph)	396	396
Prob. of Queue-free State:	1.00	1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	795	812
Potential Capacity: (pcph)	367	359
Major LT, Minor TH Impedance Factor:	0.95	0.95
Adjusted Impedance Factor:	0.96	0.96
Capacity Adjustment Factor due to Impeding Movements	0.95	0.90
Movement Capacity: (pcph)	349	325

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	29	325	>		>	>	
					401	10.0	B	10.0
EB	R	12	918	>		>	>	
WB	L	12	349	>		>	>	
					678	5.9	B	5.9
WB	R	52	866	>		>	>	
NB	L	18	1155			3.2	A	0.1
SB	L	23	1093			3.4	A	0.2

Intersection Delay = 0.9

****

File Name ..... ES51_00P.HC0
Streets: (N-S) 51st Avenue (E-W) Estrella Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2000 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	15	470	15	20	500	15	25	0	10	10	0	45
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	478	508
Potential Capacity: (pcph)	793	765
Movement Capacity: (pcph)	793	765
Prob. of Queue-free State:	0.93	0.98
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	485	515
Potential Capacity: (pcph)	1007	974
Movement Capacity: (pcph)	1007	974
Prob. of Queue-free State:	0.98	0.98
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.96	0.97
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1028	1028
Potential Capacity: (pcph)	315	315
Capacity Adjustment Factor due to Impeding Movements	0.94	0.94
Movement Capacity: (pcph)	296	296
Prob. of Queue-free State:	1.00	1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1025	1042
Potential Capacity: (pcph)	270	264
Major LT, Minor TH Impedance Factor:	0.94	0.94
Adjusted Impedance Factor:	0.95	0.95
Capacity Adjustment Factor due to Impeding Movements	0.94	0.89
Movement Capacity: (pcph)	253	235

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	29	235	>		>	>	
					295	14.2	C	14.2
EB	R	12	765	>		>	>	
WB	L	12	253	>		>	>	
					566	7.2	B	7.2
WB	R	52	793	>		>	>	
NB	L	18	974			3.8	A	0.1
SB	L	23	1007			3.7	A	0.1

Intersection Delay = 0.9

****

File Name ..... EL51_00A.HC0
Streets: (N-S) 51st Avenue (E-W) Elliot Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2000 Pk Season-(7-9:00 AM) w/ Casino-Exst Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	5	415	5	0	345	5	5	5	10	5	5	5
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	13	13	13	13	13	13	13	13	13	13	13	13
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	418	348
Potential Capacity: (pcph)	850	923
Movement Capacity: (pcph)	850	923
Prob. of Queue-free State:	0.99	0.99
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	420	350
Potential Capacity: (pcph)	1081	1168
Movement Capacity: (pcph)	1081	1168
Prob. of Queue-free State:	1.00	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	1.00	0.99
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	772	772
Potential Capacity: (pcph)	429	429
Capacity Adjustment Factor due to Impeding Movements	0.99	0.99
Movement Capacity: (pcph)	425	425
Prob. of Queue-free State:	0.98	0.98
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	778	775
Potential Capacity: (pcph)	375	377
Major LT, Minor TH Impedance Factor:	0.98	0.98
Adjusted Impedance Factor:	0.98	0.98
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	363	367

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay		LOS	Delay By App
EB	L	7	367	>		>		>	
EB	T	7	425	>	536	>	7.1	> B	7.1
EB	R	12	923	>		>		>	
WB	L	7	363	>		>		>	
WB	T	7	425	>	477	>	7.9	> B	7.9
WB	R	7	850	>		>		>	
NB	L	7	1168			3.1		A	0.0

Intersection Delay = 0.3

****

File Name ..... EL51_00P.HC0
Streets: (N-S) 51st Avenue (E-W) Elliot Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2000 Pk Season-(4-6:00 PM) w/Casino Exst Geometr
y

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	445	0	5	525	5	0	5	15	0	0	5
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	8	8	8	8	8	8	8	8	8	8	8	8
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	445	528
Potential Capacity: (pcph)	824	748
Movement Capacity: (pcph)	824	748
Prob. of Queue-free State:	0.99	0.97
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	445	530
Potential Capacity: (pcph)	1052	958
Movement Capacity: (pcph)	1052	958
Prob. of Queue-free State:	0.99	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.99	0.98
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	990	988
Potential Capacity: (pcph)	330	331
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	320	321
Prob. of Queue-free State:	1.00	0.98
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	998	990
Potential Capacity: (pcph)	280	283
Major LT, Minor TH Impedance Factor:	0.95	0.97
Adjusted Impedance Factor:	0.96	0.98
Capacity Adjustment Factor due to Impeding Movements	0.94	0.97
Movement Capacity: (pcph)	262	274

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	T	7	321				6.9
EB	R	19	748	551	6.9	B	
WB	R	7	824	824	4.4	A	
NB	L	12	958		3.8	A	0.1
SB	L	7	1052		3.4	A	0.0

Intersection Delay = 0.2

****

File Name ..... DO51_00A.HC0
Streets: (N-S) 51st Avenue (E-W) Dobbins Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2000 Pk Season-(7-9:00 AM) w/ Casino Exst Geometry

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	0>	1<	0	0>	1<	0
Volumes	15	345	60	40	305	10	15	55	20	60	40	60
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	13	13	13	13	13	13	13	13	13	13	13	13
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

****

Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	17	45	17	67
RT Flow Rate	67	11	22	67
Approach Flow Rate	472	399	101	179
Proportion LT	0.04	0.11	0.17	0.37
Proportion RT	0.14	0.03	0.22	0.37
Opposing Approach Flow Rate	399	472	179	101
Conflicting Approaches Flow Rate	280	280	871	871
Proportion, Subject Approach Flow Rate	0.41	0.35	0.09	0.16
Proportion, Opposing Approach Flow Rate	0.35	0.41	0.16	0.09
Lanes on Subject Approach	2	2	1	1
Lanes on Opposing Approach	2	2	1	1
LT, Opposing Approach	45	17	67	17
RT, Opposing Approach	11	67	67	22
LT, Conflicting Approaches	84	84	62	62
RT, Conflicting Approaches	89	89	78	78
Proportion LT, Opposing Approach	0.11	0.04	0.37	0.17
Proportion RT, Opposing Approach	0.03	0.14	0.37	0.22
Proportion LT, Conflicting Approaches	0.30	0.30	0.07	0.07
Proportion RT, Conflicting Approaches	0.32	0.32	0.09	0.09
Approach Capacity	830	857	265	316

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	472	830	0.57	8.7	B
SB	399	857	0.47	5.9	B
EB	101	265	0.38	4.3	A
WB	179	316	0.57	8.6	B

Intersection Delay = 7.31
Level of Service (Intersection) = B

****

File Name ..... DO51_00P.HC0
Streets: (N-S) 51st Avenue (E-W) Dobbins Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2000 Pk Season-(4-6:00 PM) w/Casino Exst Geometr
y

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	0>	1<	0	0>	1<	0
Volumes	20	400	30	35	455	15	10	35	20	45	40	35
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	8	8	8	8	8	8	8	8	8	8	8	8
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

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Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	22	39	11	51
RT Flow Rate	34	17	22	39
Approach Flow Rate	505	567	72	135
Proportion LT	0.04	0.07	0.15	0.38
Proportion RT	0.07	0.03	0.31	0.29
Opposing Approach Flow Rate	567	505	135	72
Conflicting Approaches Flow Rate	207	207	1072	1072
Proportion, Subject Approach Flow Rate	0.39	0.44	0.06	0.11
Proportion, Opposing Approach Flow Rate	0.44	0.39	0.11	0.06
Lanes on Subject Approach	2	2	1	1
Lanes on Opposing Approach	2	2	1	1
LT, Opposing Approach	39	22	51	11
RT, Opposing Approach	17	34	39	22
LT, Conflicting Approaches	62	62	61	61
RT, Conflicting Approaches	61	61	51	51
Proportion LT, Opposing Approach	0.07	0.04	0.38	0.15
Proportion RT, Opposing Approach	0.03	0.07	0.29	0.31
Proportion LT, Conflicting Approaches	0.30	0.30	0.06	0.06
Proportion RT, Conflicting Approaches	0.29	0.29	0.05	0.05
Approach Capacity	889	919	172	257

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	505	889	0.57	8.7	B
SB	567	919	0.62	10.4	C
EB	72	172	0.42	4.9	A
WB	135	257	0.52	7.3	B

Intersection Delay = 9.10
Level of Service (Intersection) = B

****

File Name ..... BA51_00A.HC0
Streets: (N-S) 51st Avenue (E-W) Baseline Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2000 Pk Season-(7-9:00 AM) w/Casino Exst Geometr

y

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	1	1<	0	1	1<	0
Volumes	35	390	65	85	300	35	40	145	45	40	80	60
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

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Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	39	96	45	45
RT Flow Rate	73	39	51	67
Approach Flow Rate	550	472	259	202
Proportion LT	0.07	0.20	0.17	0.22
Proportion RT	0.13	0.08	0.20	0.33
Opposing Approach Flow Rate	472	550	202	259
Conflicting Approaches Flow Rate	461	461	1022	1022
Proportion, Subject Approach Flow Rate	0.37	0.32	0.17	0.14
Proportion, Opposing Approach Flow Rate	0.32	0.37	0.14	0.17
Lanes on Subject Approach	2	2	2	2
Lanes on Opposing Approach	2	2	2	2
LT, Opposing Approach	96	39	45	45
RT, Opposing Approach	39	73	67	51
LT, Conflicting Approaches	90	90	135	135
RT, Conflicting Approaches	118	118	112	112
Proportion LT, Opposing Approach	0.20	0.07	0.22	0.17
Proportion RT, Opposing Approach	0.08	0.13	0.33	0.20
Proportion LT, Conflicting Approaches	0.20	0.20	0.13	0.13
Proportion RT, Conflicting Approaches	0.26	0.26	0.11	0.11
Approach Capacity	767	801	463	439

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	550	767	0.72	15.2	C
SB	472	801	0.59	9.4	B
EB	*	*	*	*	*
WB	*	*	*	*	*

Intersection Delay = *
Level of Service (Intersection) = *

*The range limits on this approach exceed the maximum.

****

File Name ..... BA51_00P.HC0
Streets: (N-S) 51st Avenue (E-W) Baseline Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2000 Pk Season-(4-6:00 PM) w/Casino Exst Geometr
y

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	1	1<	0	1	1<	0
Volumes	35	400	50	85	450	70	40	95	55	60	135	70
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

****

Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	39	96	45	67
RT Flow Rate	56	79	62	79
Approach Flow Rate	544	681	214	298
Proportion LT	0.07	0.14	0.21	0.22
Proportion RT	0.10	0.12	0.29	0.27
Opposing Approach Flow Rate	681	544	298	214
Conflicting Approaches Flow Rate	512	512	1225	1225
Proportion, Subject Approach Flow Rate	0.31	0.39	0.12	0.17
Proportion, Opposing Approach Flow Rate	0.39	0.31	0.17	0.12
Lanes on Subject Approach	2	2	2	2
Lanes on Opposing Approach	2	2	2	2
LT, Opposing Approach	96	39	67	45
RT, Opposing Approach	79	56	79	62
LT, Conflicting Approaches	112	112	135	135
RT, Conflicting Approaches	141	141	135	135
Proportion LT, Opposing Approach	0.14	0.07	0.22	0.21
Proportion RT, Opposing Approach	0.12	0.10	0.27	0.29
Proportion LT, Conflicting Approaches	0.22	0.22	0.11	0.11
Proportion RT, Conflicting Approaches	0.28	0.28	0.11	0.11
Approach Capacity	786	827	429	453

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	544	786	0.69	13.9	C
SB	681	827	0.82	22.8	D
EB	*	*	*	*	*
WB	*	*	*	*	*

Intersection Delay = *
Level of Service (Intersection) = *

*The range limits on this approach exceed the maximum.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 09-12-1997
Kirkham, Michael & Associates

Streets: (E-W) Southern Avenue (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: SO51_00A.HC9
Area Type: Other 6-23-97 AM Peak
Comment: 2000 Pk Season with Casino, Exst Geometry

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	1	<	1	1	1
Volumes	25	85	10	25	40	75	10	405	25	130	365	15
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
WB Left	*				SB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
NB Right					EB Right				
SB Right					WB Right				
Green	30.0A				Green	52.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	374	1087	0.075	0.344	12.8	B	13.3	B
	TR	570	1656	0.188	0.344	13.4	B		
WB	L	405	1175	0.069	0.344	12.8	B	13.5	B
	TR	523	1517	0.247	0.344	13.7	B		
NB	L	312	529	0.035	0.589	5.0	A	7.2	B
	TR	981	1666	0.492	0.589	7.2	B		
SB	L	228	388	0.639	0.589	11.9	B	8.0	B
	T	990	1681	0.414	0.589	6.7	B		
	R	842	1429	0.020	0.589	5.0	A		

Intersection Delay = 8.9 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.494

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 09-12-1997
Kirkham, Michael & Associates

Streets: (E-W) Southern Avenue (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: SO51_00P.HC9
Area Type: Other 6-23-97 PM Peak
Comment: 2000 Pk Season with Casino, Exst Geometry

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	1	<	1	1	1
Volumes	25	50	15	40	140	105	20	430	25	100	530	25
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left *			
Thru	*				Thru *			
Right	*				Right *			
Peds	*				Peds *			
WB Left	*				SB Left *			
Thru	*				Thru *			
Right	*				Right *			
Peds	*				Peds *			
NB Right					EB Right			
SB Right					WB Right			
Green	30.0A				Green 52.0A			
Yellow/AR	4.0				Yellow/AR 4.0			

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	224	651	0.125	0.344	13.1	B	13.1	B
	TR	585	1699	0.125	0.344	13.1	B		
WB	L	471	1367	0.096	0.344	12.9	B	15.2	C
	TR	567	1646	0.485	0.344	15.5	C		
NB	L	158	269	0.139	0.589	5.4	B	7.2	B
	TR	1028	1746	0.497	0.589	7.3	B		
SB	L	214	364	0.522	0.589	8.9	B	8.0	B
	T	1036	1759	0.575	0.589	8.0	B		
	R	880	1495	0.032	0.589	5.0	A		

Intersection Delay = 9.4 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.542

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File Name ..... BR51_00A.HC0
Streets: (N-S) 51st Avenue (E-W) Broadway Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2000 Pk Season-(7-9:00 AM) w/Casino Exst Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1<	0	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	30	485			430	25	55		85			
PHF	.89	.89			.89	.89	.89		.89			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	13	13			13	13	13		13			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		442
Potential Capacity: (pcph)		827
Movement Capacity: (pcph)		827
Prob. of Queue-free State:		0.87

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		455
Potential Capacity: (pcph)		1041
Movement Capacity: (pcph)		1041
Prob. of Queue-free State:		0.96

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		958
Potential Capacity: (pcph)		295
Major LT, Minor TH Impedance Factor:		0.96
Adjusted Impedance Factor:		0.96
Capacity Adjustment Factor due to Impeding Movements		0.96
Movement Capacity: (pcph)		285

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	68	285		16.6	C	
							10.2
EB	R	106	827		5.0	A	
NB	L	37	1041		3.6	A	0.2

Intersection Delay = 1.4

****

File Name ..... BR51_00P.HC0
Streets: (N-S) 51st Avenue (E-W) Broadway Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2000 Pk Season-(4-6:00 PM) w/Casino Exst Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1<	0	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	45	540			650	45	20		40			
PHF	.89	.89			.89	.89	.89		.89			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	8	8			8	8	8		8			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		672
Potential Capacity: (pcph)		632
Movement Capacity: (pcph)		632
Prob. of Queue-free State:		0.92

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		695
Potential Capacity: (pcph)		800
Movement Capacity: (pcph)		800
Prob. of Queue-free State:		0.93

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1258
Potential Capacity: (pcph)		198
Major LT, Minor TH Impedance Factor:		0.93
Adjusted Impedance Factor:		0.93
Capacity Adjustment Factor due to Impeding Movements		0.93
Movement Capacity: (pcph)		184

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	24	184		22.5	D	
							10.2
EB	R	50	632		6.2	B	
NB	L	56	800		4.8	A	0.3

Intersection Delay = 0.8

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File Name ..... PE51_05A.HC0
Streets: (N-S) 51st Avenue (E-W) Pecos Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	300	15	15	355	5	15	0	0	10	0	30
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	308	358
Potential Capacity: (pcph)	967	912
Movement Capacity: (pcph)	967	912
Prob. of Queue-free State:	0.96	1.00
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	315	360
Potential Capacity: (pcph)	1213	1155
Movement Capacity: (pcph)	1213	1155
Prob. of Queue-free State:	0.99	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.98	0.99
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	692	698
Potential Capacity: (pcph)	473	469
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	458	454
Prob. of Queue-free State:	1.00	1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	690	705
Potential Capacity: (pcph)	422	414
Major LT, Minor TH Impedance Factor:	0.97	0.97
Adjusted Impedance Factor:	0.98	0.98
Capacity Adjustment Factor due to Impeding Movements	0.98	0.94
Movement Capacity: (pcph)	411	389

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	18	389	>	389	> 9.7	> B	
WB	L	12	411	>		>	>	
					719	5.4	B	5.4
WB	R	35	967	>		>	>	
NB	L	12	1155			3.1	A	0.1
SB	L	18	1213			3.0	A	0.1

Intersection Delay = 0.6

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File Name ..... PE51_05P.HC0
Streets: (N-S) 51st Avenue (E-W) Pecos Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	360	15	20	415	5	20	10	10	25	10	50
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

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WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	368	418
Potential Capacity: (pcph)	901	850
Movement Capacity: (pcph)	901	850
Prob. of Queue-free State:	0.94	0.99
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	375	420
Potential Capacity: (pcph)	1136	1081
Movement Capacity: (pcph)	1136	1081
Prob. of Queue-free State:	0.98	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.97	0.99
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	818	822
Potential Capacity: (pcph)	406	404
Capacity Adjustment Factor due to Impeding Movements	0.96	0.96
Movement Capacity: (pcph)	389	387
Prob. of Queue-free State:	0.97	0.97
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	825	845
Potential Capacity: (pcph)	352	343
Major LT, Minor TH Impedance Factor:	0.93	0.93
Adjusted Impedance Factor:	0.94	0.94
Capacity Adjustment Factor due to Impeding Movements	0.93	0.88
Movement Capacity: (pcph)	328	303

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	23	303	>		>	>	
EB	T	12	387	>	388	> 10.6	> C	10.6
EB	R	12	850	>		>	>	
WB	L	29	328	>		>	>	
WB	T	12	389	>	539	> 8.2	> B	8.2
WB	R	58	901	>		>	>	
NB	L	12	1081			3.4	A	0.1
SB	L	23	1136			3.2	A	0.1

Intersection Delay = 1.3

****

File Name ..... SJ51_05A.HC0
Streets: (N-S) 51st Avenue (E-W) St. Johns Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1	0	0	1<	0	1>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes	15	345			365	30	55		25			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	0	0			0	0	0		0			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		380
Potential Capacity: (pcph)		889
Movement Capacity: (pcph)		889
Prob. of Queue-free State:		0.97
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)		395
Potential Capacity: (pcph)		1111
Movement Capacity: (pcph)		1111
Prob. of Queue-free State:		0.98
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:		0.98
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)		740
Potential Capacity: (pcph)		395
Major LT, Minor TH Impedance Factor:		0.98
Adjusted Impedance Factor:		0.98
Capacity Adjustment Factor due to Impeding Movements		0.98
Movement Capacity: (pcph)		387

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Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	64	387	470	9.5	B	9.5
EB	R	29	889				
NB	L	18	1111		3.3	A	0.1

Intersection Delay = 1.0

****

File Name ..... SJ51_05P.HC0
Streets: (N-S) 51st Avenue (E-W) St. Johns Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1	0	0	1<	0	1>	0<	0	0	0	0
Stop/Yield			N			N						
Volumes	15	415			435	30	55		25			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	0	0			0	0	0		0			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		450
Potential Capacity: (pcph)		819
Movement Capacity: (pcph)		819
Prob. of Queue-free State:		0.96
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)		465
Potential Capacity: (pcph)		1029
Movement Capacity: (pcph)		1029
Prob. of Queue-free State:		0.98
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:		0.98
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)		880
Potential Capacity: (pcph)		328
Major LT, Minor TH Impedance Factor:		0.98
Adjusted Impedance Factor:		0.98
Capacity Adjustment Factor due to Impeding Movements		0.98
Movement Capacity: (pcph)		320

****

Intersection Performance Summary

Movement	FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB L	64	320	395	11.9	C	11.9
EB R	29	819				
NB L	18	1029		3.6	A	0.1

Intersection Delay = 1.0

****

File Name ..... CS51_05A.HC0
Streets: (N-S) 51st Avenue (E-W) Casino Entrance
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	1	1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		370	20	120	275					20		85
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	380	
Potential Capacity: (pcph)	889	
Movement Capacity: (pcph)	889	
Prob. of Queue-free State:	0.89	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	390	
Potential Capacity: (pcph)	1117	
Movement Capacity: (pcph)	1117	
Prob. of Queue-free State:	0.88	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	775	
Potential Capacity: (pcph)	377	
Major LT, Minor TH Impedance Factor:	0.88	
Adjusted Impedance Factor:	0.88	
Capacity Adjustment Factor due to Impeding Movements	0.88	
Movement Capacity: (pcph)	330	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	23	330		11.7	C	
							5.3
WB	R	98	889		4.6	A	
SB	L	139	1117		3.7	A	1.1

Intersection Delay = 1.1

****

File Name ..... CS51_05P.HC0
Streets: (N-S) 51st Avenue (E-W) Casino Entrance
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	1	1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		375	30	175	370					30		175
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	390	
Potential Capacity: (pcph)	878	
Movement Capacity: (pcph)	878	
Prob. of Queue-free State:	0.77	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	405	
Potential Capacity: (pcph)	1099	
Movement Capacity: (pcph)	1099	
Prob. of Queue-free State:	0.82	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	935	
Potential Capacity: (pcph)	304	
Major LT, Minor TH Impedance Factor:	0.82	
Adjusted Impedance Factor:	0.82	
Capacity Adjustment Factor due to Impeding Movements	0.82	
Movement Capacity: (pcph)	248	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	35	248		16.9	C	
							5.3
WB	R	202	878		5.3	B	
SB	L	202	1099		4.0	A	1.2

Intersection Delay = 1.5

****

File Name ..... DU51_05A.HC0
Streets: (N-S) 51st Avenue (E-W) Dusty Lane
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	0>	1	0	0	0	0	1>	0<	0
Stop/Yield			N			N						
Volumes		470	25	30	385					15		25
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	482	
Potential Capacity: (pcph)	789	
Movement Capacity: (pcph)	789	
Prob. of Queue-free State:	0.96	
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	495	
Potential Capacity: (pcph)	996	
Movement Capacity: (pcph)	996	
Prob. of Queue-free State:	0.96	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:	0.95	
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	898	
Potential Capacity: (pcph)	320	
Major LT, Minor TH Impedance Factor:	0.95	
Adjusted Impedance Factor:	0.95	
Capacity Adjustment Factor due to Impeding Movements	0.95	
Movement Capacity: (pcph)	305	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	18	305	491	8.1	B	8.1
WB	R	29	789				
SB	L	35	996		3.7	A	0.3

Intersection Delay = 0.5

****

File Name ..... DU51_05P.HC0
Streets: (N-S) 51st Avenue (E-W) Dusty Lane
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	0>	1	0	0	0	0	1>	0<	0
Stop/Yield			N			N						
Volumes		530	25	30	535					15		25
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

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WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	542	
Potential Capacity: (pcph)	736	
Movement Capacity: (pcph)	736	
Prob. of Queue-free State:	0.96	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	555	
Potential Capacity: (pcph)	932	
Movement Capacity: (pcph)	932	
Prob. of Queue-free State:	0.96	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-free State:	0.94	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1108	
Potential Capacity: (pcph)	242	
Major LT, Minor TH Impedance Factor:	0.94	
Adjusted Impedance Factor:	0.94	
Capacity Adjustment Factor due to Impeding Movements	0.94	
Movement Capacity: (pcph)	228	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	18	228	>		>	>	
					397	10.3	C	10.3
WB	R	29	736	>		>	>	
SB	L	35	932			4.0	A	0.2

Intersection Delay = 0.5

****

File Name ..... ES51_05A.HC0
Streets: (N-S) 51st Avenue (E-W) Estrella Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 AM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	15	460	15	25	395	15	30	0	10	10	0	55
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	468	402
Potential Capacity: (pcph)	802	866
Movement Capacity: (pcph)	802	866
Prob. of Queue-free State:	0.92	0.99
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	475	410
Potential Capacity: (pcph)	1018	1093
Movement Capacity: (pcph)	1018	1093
Prob. of Queue-free State:	0.97	0.98
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.96	0.98
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	918	918
Potential Capacity: (pcph)	360	360
Capacity Adjustment Factor due to Impeding Movements	0.94	0.94
Movement Capacity: (pcph)	337	337
Prob. of Queue-free State:	1.00	1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	915	938
Potential Capacity: (pcph)	313	303
Major LT, Minor TH Impedance Factor:	0.94	0.94
Adjusted Impedance Factor:	0.95	0.95
Capacity Adjustment Factor due to Impeding Movements	0.94	0.88
Movement Capacity: (pcph)	294	265

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	35	265	>		>	>	
					322	13.1	C	13.1
EB	R	12	866	>		>	>	
WB	L	12	294	>		>	>	
					630	6.5	B	6.5
WB	R	64	802	>		>	>	
NB	L	18	1093			3.3	A	0.1
SB	L	29	1018			3.6	A	0.2

Intersection Delay = 1.1

****

File Name ..... ES51_05P.HC0
Streets: (N-S) 51st Avenue (E-W) Estrella Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 PM Peak Hour-Pk Season-Existing Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	15	535	15	25	570	15	30	0	10	10	0	55
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	542	578
Potential Capacity: (pcph)	736	705
Movement Capacity: (pcph)	736	705
Prob. of Queue-free State:	0.91	0.98
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	550	585
Potential Capacity: (pcph)	938	902
Movement Capacity: (pcph)	938	902
Prob. of Queue-free State:	0.97	0.98
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.95	0.97
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1168	1168
Potential Capacity: (pcph)	266	266
Capacity Adjustment Factor due to Impeding Movements	0.92	0.92
Movement Capacity: (pcph)	244	244
Prob. of Queue-free State:	1.00	1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1165	1188
Potential Capacity: (pcph)	224	217
Major LT, Minor TH Impedance Factor:	0.92	0.92
Adjusted Impedance Factor:	0.94	0.94
Capacity Adjustment Factor due to Impeding Movements	0.92	0.86
Movement Capacity: (pcph)	206	186

****

Intersection Performance Summary

Movement	FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB L	35	186	229	19.8	C	19.8
EB R	12	705				
WB L	12	206	523	8.1	B	8.1
WB R	64	736				
NB L	18	902		4.1	A	0.1
SB L	29	938		4.0	A	0.2

Intersection Delay = 1.2

****

File Name ..... EL51_05A.HC0
Streets: (N-S) 51st Avenue (E-W) Elliot Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 Pk Season-(7-9:00AM) w/Casino-Exst Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	485	5	0	395	5	5	5	15	5	10	5
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	13	13	13	13	13	13	13	13	13	13	13	13
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	488	398
Potential Capacity: (pcph)	784	870
Movement Capacity: (pcph)	784	870
Prob. of Queue-free State:	0.99	0.98
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	490	400
Potential Capacity: (pcph)	1001	1105
Movement Capacity: (pcph)	1001	1105
Prob. of Queue-free State:	1.00	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	1.00	0.98
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	898	898
Potential Capacity: (pcph)	369	369
Capacity Adjustment Factor due to Impeding Movements	0.98	0.98
Movement Capacity: (pcph)	363	363
Prob. of Queue-free State:	0.97	0.98
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	905	902
Potential Capacity: (pcph)	317	318
Major LT, Minor TH Impedance Factor:	0.96	0.95
Adjusted Impedance Factor:	0.97	0.96
Capacity Adjustment Factor due to Impeding Movements	0.95	0.95
Movement Capacity: (pcph)	302	303

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	7	303				
EB	T	7	363	514	7.5	B	7.5
EB	R	19	870				
WB	L	7	302				
WB	T	12	363	399	9.7	B	9.7
WB	R	7	784				
NB	L	12	1105		3.3	A	0.1

Intersection Delay = 0.4

****

File Name ..... EL51_05P.HC0
Streets: (N-S) 51st Avenue (E-W) Elliot Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 Pk Season-(4-6:00PM)w/Casino-Exst Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0>	1<	0	0>	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	510	0	5	605	10	0	5	15	0	0	5
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	8	8	8	8	8	8	8	8	8	8	8	8
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	510	610
Potential Capacity: (pcph)	764	680
Movement Capacity: (pcph)	764	680
Prob. of Queue-free State:	0.99	0.97
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	510	615
Potential Capacity: (pcph)	980	873
Movement Capacity: (pcph)	980	873
Prob. of Queue-free State:	0.99	0.99
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-free State:	0.99	0.98
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1140	1135
Potential Capacity: (pcph)	275	277
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	266	267
Prob. of Queue-free State:	1.00	0.97
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1145	1138
Potential Capacity: (pcph)	230	232
Major LT, Minor TH Impedance Factor:	0.94	0.97
Adjusted Impedance Factor:	0.95	0.97
Capacity Adjustment Factor due to Impeding Movements	0.93	0.96
Movement Capacity: (pcph)	213	224

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay		LOS	Delay By App
EB	T	7	267	>		>		>	7.9
EB	R	19	680	>	480	>	7.9	> B	
WB	R	7	764	>	764	>	4.8	> A	
NB	L	12	873			4.2		A	0.1
SB	L	7	980			3.7		A	0.0

Intersection Delay = 0.2

****

File Name ..... DO51_05A.HC0
Streets: (N-S) 51st Avenue (E-W) Dobbins Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 Pk Season-(7-9:00AM)w/Casino-Exst Geometry

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	0>	1<	0	0>	1<	0
Volumes	20	405	75	50	345	10	20	70	20	75	50	75
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	13	13	13	13	13	13	13	13	13	13	13	13
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	22	56	22	84
RT Flow Rate	84	11	22	84
Approach Flow Rate	561	455	123	224
Proportion LT	0.04	0.12	0.18	0.38
Proportion RT	0.15	0.02	0.18	0.38
Opposing Approach Flow Rate	455	561	224	123
Conflicting Approaches Flow Rate	347	347	1016	1016
Proportion, Subject Approach Flow Rate	0.41	0.33	0.09	0.16
Proportion, Opposing Approach Flow Rate	0.33	0.41	0.16	0.09
Lanes on Subject Approach	2	2	1	1
Lanes on Opposing Approach	2	2	1	1
LT, Opposing Approach	56	22	84	22
RT, Opposing Approach	11	84	84	22
LT, Conflicting Approaches	106	106	78	78
RT, Conflicting Approaches	106	106	95	95
Proportion LT, Opposing Approach	0.12	0.04	0.38	0.18
Proportion RT, Opposing Approach	0.02	0.15	0.38	0.18
Proportion LT, Conflicting Approaches	0.31	0.31	0.08	0.08
Proportion RT, Conflicting Approaches	0.31	0.31	0.09	0.09
Approach Capacity	813	840	273	315

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	561	813	0.69	13.8	C
SB	455	840	0.54	7.8	B
EB	123	273	0.45	5.5	B
WB	224	315	0.71	15.0	C

Intersection Delay = 11.24
Level of Service (Intersection) = C

****

File Name ..... DO51_05P.HC0
Streets: (N-S) 51st Avenue (E-W) Dobbins Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 Pk Season-(4-6:00PM)w/Casino-Exst Geometry

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	0>	1<	0	0>	1<	0
Volumes	20	455	35	45	520	15	15	45	25	50	50	40
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	8	8	8	8	8	8	8	8	8	8	8	8
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

****

Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	22	51	17	56
RT Flow Rate	39	17	28	45
Approach Flow Rate	572	652	96	157
Proportion LT	0.04	0.08	0.18	0.36
Proportion RT	0.07	0.03	0.29	0.29
Opposing Approach Flow Rate	652	572	157	96
Conflicting Approaches Flow Rate	253	253	1224	1224
Proportion, Subject Approach Flow Rate	0.39	0.44	0.06	0.11
Proportion, Opposing Approach Flow Rate	0.44	0.39	0.11	0.06
Lanes on Subject Approach	2	2	1	1
Lanes on Opposing Approach	2	2	1	1
LT, Opposing Approach	51	22	56	17
RT, Opposing Approach	17	39	45	28
LT, Conflicting Approaches	73	73	73	73
RT, Conflicting Approaches	73	73	56	56
Proportion LT, Opposing Approach	0.08	0.04	0.36	0.18
Proportion RT, Opposing Approach	0.03	0.07	0.29	0.29
Proportion LT, Conflicting Approaches	0.29	0.29	0.06	0.06
Proportion RT, Conflicting Approaches	0.29	0.29	0.05	0.05
Approach Capacity	878	915	186	253

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	*	*	*	*	*
SB	*	*	*	*	*
EB	*	*	*	*	*
WB	*	*	*	*	*

Intersection Delay = *
Level of Service (Intersection) = *

*The range limits on this approach exceed the maximum.

****

File Name ..... BA51_05A.HC0
Streets: (N-S) 51st Avenue (E-W) Baseline Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 Pk Season-(7-9:00AM)w/Casino-Exst Geometry

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	1	1<	0	1	1<	0
Volumes	45	460	80	105	345	45	50	180	55	45	100	75
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	51	118	56	51
RT Flow Rate	90	51	62	84
Approach Flow Rate	658	557	320	247
Proportion LT	0.08	0.21	0.17	0.21
Proportion RT	0.14	0.09	0.19	0.34
Opposing Approach Flow Rate	557	658	247	320
Conflicting Approaches Flow Rate	567	567	1215	1215
Proportion, Subject Approach Flow Rate	0.37	0.31	0.18	0.14
Proportion, Opposing Approach Flow Rate	0.31	0.37	0.14	0.18
Lanes on Subject Approach	2	2	2	2
Lanes on Opposing Approach	2	2	2	2
LT, Opposing Approach	118	51	51	56
RT, Opposing Approach	51	90	84	62
LT, Conflicting Approaches	107	107	169	169
RT, Conflicting Approaches	146	146	141	141
Proportion LT, Opposing Approach	0.21	0.08	0.21	0.17
Proportion RT, Opposing Approach	0.09	0.14	0.34	0.19
Proportion LT, Conflicting Approaches	0.19	0.19	0.14	0.14
Proportion RT, Conflicting Approaches	0.26	0.26	0.12	0.12
Approach Capacity	763	796	476	444

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	658	763	0.86	26.4	D
SB	557	796	0.70	14.3	C
EB	*	*	*	*	*
WB	*	*	*	*	*

Intersection Delay = *
Level of Service (Intersection) = *

*The range limits on this approach exceed the maximum.

****

File Name ..... BA51_05P.HC0
Streets: (N-S) 51st Avenue (E-W) Baseline Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 Pk Season-(4-6:00PM)w/Casino-Exst Geometry

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	1	1<	0	1	1<	0
Volumes	40	455	55	100	520	85	50	120	65	70	165	85
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

****

Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	45	112	56	79
RT Flow Rate	62	96	73	96
Approach Flow Rate	618	792	264	360
Proportion LT	0.07	0.14	0.21	0.22
Proportion RT	0.10	0.12	0.28	0.27
Opposing Approach Flow Rate	792	618	360	264
Conflicting Approaches Flow Rate	624	624	1410	1410
Proportion, Subject Approach Flow Rate	0.30	0.39	0.13	0.18
Proportion, Opposing Approach Flow Rate	0.39	0.30	0.18	0.13
Lanes on Subject Approach	2	2	2	2
Lanes on Opposing Approach	2	2	2	2
LT, Opposing Approach	112	45	79	56
RT, Opposing Approach	96	62	96	73
LT, Conflicting Approaches	135	135	157	157
RT, Conflicting Approaches	169	169	158	158
Proportion LT, Opposing Approach	0.14	0.07	0.22	0.21
Proportion RT, Opposing Approach	0.12	0.10	0.27	0.28
Proportion LT, Conflicting Approaches	0.22	0.22	0.11	0.11
Proportion RT, Conflicting Approaches	0.27	0.27	0.11	0.11
Approach Capacity	775	817	441	460

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	618	775	0.80	20.7	D
SB	792	817	0.97	39.9	E
EB	*	*	*	*	*
WB	*	*	*	*	*

Intersection Delay = *
Level of Service (Intersection) = *

*The range limits on this approach exceed the maximum.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 09-12-1997
Kirkham, Michael & Associates

Streets: (E-W) Southern Avenue (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: SO51_05A.HC9
Area Type: Other 6-23-97 AM Peak
Comment: 2005 Pk Season with Casino, Exst Geometry

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	1	<	1	1	1
Volumes	30	110	15	25	50	95	15	480	30	160	425	15
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds	*				Peds	*		
WB Left	*				SB Left	*	*	
Thru	*				Thru	*	*	
Right	*				Right	*	*	
Peds	*				Peds		*	
NB Right					EB Right			
SB Right					WB Right			
Green	30.0A				Green	8.0A	40.0A	
Yellow/AR	4.0				Yellow/AR	4.0	4.0	

Cycle Length: 90 secs Phase combination order: #1 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	316	918	0.108	0.344	13.0	B	13.6	B
	TR	569	1651	0.248	0.344	13.7	B		
WB	L	343	996	0.082	0.344	12.9	B	13.9	B
	TR	522	1515	0.312	0.344	14.1	B		
NB	L	147	323	0.116	0.456	9.1	B	15.9	C
	TR	759	1666	0.755	0.456	16.1	C		
SB	L	240	1597	0.750	0.233	20.0	C	10.5	B
	T	990	1681	0.483	0.589	7.2	B		
	R	842	1429	0.020	0.589	5.0	A		

Intersection Delay = 13.2 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.613

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 09-12-1997

Kirkham, Michael & Associates

Streets: (E-W) Southern Avenue (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: SO51_05P.HC9
Area Type: Other 6-23-97 PM Peak
Comment: 2005 Pk Season with Casino, Exst Geometry

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	1	<	1	1	1
Volumes	30	60	20	50	175	130	20	490	30	125	615	30
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
WB Left	*				SB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
NB Right					EB Right				
SB Right					WB Right				
Green	30.0A				Green	52.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	168	487	0.203	0.344	13.5	B	13.3	B
	TR	583	1693	0.153	0.344	13.2	B		
WB	L	452	1311	0.124	0.344	13.1	B	16.5	C
	TR	567	1646	0.605	0.344	17.1	C		
NB	L	88	150	0.249	0.589	6.1	B	7.9	B
	TR	1026	1743	0.570	0.589	8.0	B		
SB	L	164	279	0.852	0.589	32.0	D	12.8	B
	T	1036	1759	0.667	0.589	9.3	B		
	R	880	1495	0.039	0.589	5.0	A		

Intersection Delay = 12.1 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.761

****

File Name ..... BR51_05A.HC0
Streets: (N-S) 51st Avenue (E-W) Broadway Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 Pk Season-(7-9:00AM)w/Casino-Exst Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1<	0	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	40	575			510	30	70		105			
PHF	.89	.89			.89	.89	.89		.89			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	13	13			13	13	13		13			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		525
Potential Capacity: (pcph)		750
Movement Capacity: (pcph)		750
Prob. of Queue-free State:		0.83

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		540
Potential Capacity: (pcph)		948
Movement Capacity: (pcph)		948
Prob. of Queue-free State:		0.95

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1140
Potential Capacity: (pcph)		232
Major LT, Minor TH Impedance Factor:		0.95
Adjusted Impedance Factor:		0.95
Capacity Adjustment Factor due to Impeding Movements		0.95
Movement Capacity: (pcph)		220

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	87	220		27.0	D	
							10.2
EB	R	130	750		5.8	B	
NB	L	50	948		4.0	A	0.2

Intersection Delay = 1.5

****

File Name ..... BR51_05P.HC0
Streets: (N-S) 51st Avenue (E-W) Broadway Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 Pk Season-(4-6:00PM)w/Casino-Exst Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1<	0	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	55	625			760	50	25		50			
PHF	.89	.89			.89	.89	.89		.89			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	8	8			8	8	8		8			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		785
Potential Capacity: (pcph)		554
Movement Capacity: (pcph)		554
Prob. of Queue-free State:		0.89

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		810
Potential Capacity: (pcph)		705
Movement Capacity: (pcph)		705
Prob. of Queue-free State:		0.90

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1465
Potential Capacity: (pcph)		150
Major LT, Minor TH Impedance Factor:		0.90
Adjusted Impedance Factor:		0.90
Capacity Adjustment Factor due to Impeding Movements		0.90
Movement Capacity: (pcph)		136

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Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	31	136		34.2	E	
							10.2
EB	R	62	554		7.3	B	
NB	L	68	705		5.7	B	0.4

Intersection Delay = 0.8

****

File Name ..... DU51_5AI.HC0
Streets: (N-S) 51st Avenue (E-W) Dusty Lane
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 AM Peak Hour-Pk Season-Improved Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	1	1	0	0	0	0	1>	0<	0
Stop/Yield			N			N						
Volumes		470	25	30	385					15		25
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	482	
Potential Capacity: (pcph)	789	
Movement Capacity: (pcph)	789	
Prob. of Queue-free State:	0.96	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	495	
Potential Capacity: (pcph)	996	
Movement Capacity: (pcph)	996	
Prob. of Queue-free State:	0.96	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	898	
Potential Capacity: (pcph)	320	
Major LT, Minor TH Impedance Factor:	0.96	
Adjusted Impedance Factor:	0.96	
Capacity Adjustment Factor due to Impeding Movements	0.96	
Movement Capacity: (pcph)	309	

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	18	309	>		>	>	
					495	8.0	B	8.0
WB	R	29	789	>		>	>	
SB	L	35	996			3.7	A	0.3

Intersection Delay = 0.5

****

File Name ..... DU51_5PI.HC0
Streets: (N-S) 51st Avenue (E-W) Dusty Lane
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 PM Peak Hour-Pk Season-Improved Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1<	0	1	1	0	0	0	0	1>	0<	0
Stop/Yield			N			N						
Volumes		530	25	30	535					15		25
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0			0			0	
MC's (%)		0	0	0	0					0		0
SU/RV's (%)		0	0	0	0					0		0
CV's (%)		0	0	0	0					0		0
PCE's		1.1	1.1	1.1	1.1					1.1		1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	542	
Potential Capacity: (pcph)	736	
Movement Capacity: (pcph)	736	
Prob. of Queue-free State:	0.96	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	555	
Potential Capacity: (pcph)	932	
Movement Capacity: (pcph)	932	
Prob. of Queue-free State:	0.96	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1108	
Potential Capacity: (pcph)	242	
Major LT, Minor TH Impedance Factor:	0.96	
Adjusted Impedance Factor:	0.96	
Capacity Adjustment Factor due to Impeding Movements	0.96	
Movement Capacity: (pcph)	233	

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Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
WB	L	18	233	>		>	>	
					403	10.1	C	10.1
WB	R	29	736	>		>	>	
SB	L	35	932			4.0	A	0.2

Intersection Delay = 0.5

****

File Name ..... ES51_5AI.HC0
Streets: (N-S) 51st Avenue (E-W) Estrella Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 AM Peak Hour-Pk Season-Improved Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	15	460	15	25	395	15	30	0	10	10	0	55
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	468	402
Potential Capacity: (pcph)	802	866
Movement Capacity: (pcph)	802	866
Prob. of Queue-free State:	0.92	0.99
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	475	410
Potential Capacity: (pcph)	1018	1093
Movement Capacity: (pcph)	1018	1093
Prob. of Queue-free State:	0.97	0.98
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	918	918
Potential Capacity: (pcph)	360	360
Capacity Adjustment Factor due to Impeding Movements	0.96	0.96
Movement Capacity: (pcph)	344	344
Prob. of Queue-free State:	1.00	1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	915	938
Potential Capacity: (pcph)	313	303
Major LT, Minor TH Impedance Factor:	0.96	0.96
Adjusted Impedance Factor:	0.97	0.97
Capacity Adjustment Factor due to Impeding Movements	0.95	0.89
Movement Capacity: (pcph)	298	269

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Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	35	269	>		>	>	
					326	12.9	C	12.9
EB	R	12	866	>		>	>	
WB	L	12	298	>		>	>	
					633	6.5	B	6.5
WB	R	64	802	>		>	>	
NB	L	18	1093			3.3	A	0.1
SB	L	29	1018			3.6	A	0.2

Intersection Delay = 1.0

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File Name ..... ES51_5PI.HC0
Streets: (N-S) 51st Avenue (E-W) Estrella Drive
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 7/16/97
Other Information..... 2005 PM Peak Hour-Pk Season-Improved Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	15	535	15	25	570	15	30	0	10	10	0	55
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	542	578
Potential Capacity: (pcph)	736	705
Movement Capacity: (pcph)	736	705
Prob. of Queue-free State:	0.91	0.98
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	550	585
Potential Capacity: (pcph)	938	902
Movement Capacity: (pcph)	938	902
Prob. of Queue-free State:	0.97	0.98
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1168	1168
Potential Capacity: (pcph)	266	266
Capacity Adjustment Factor due to Impeding Movements	0.95	0.95
Movement Capacity: (pcph)	253	253
Prob. of Queue-free State:	1.00	1.00
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1165	1188
Potential Capacity: (pcph)	224	217
Major LT, Minor TH Impedance Factor:	0.95	0.95
Adjusted Impedance Factor:	0.96	0.96
Capacity Adjustment Factor due to Impeding Movements	0.95	0.88
Movement Capacity: (pcph)	212	191

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Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	35	191	>		>	>	
					235	19.1	C	19.1
EB	R	12	705	>		>	>	
WB	L	12	212	>		>	>	
					529	7.9	B	7.9
WB	R	64	736	>		>	>	
NB	L	18	902			4.1	A	0.1
SB	L	29	938			4.0	A	0.2

Intersection Delay = 1.1

****

File Name ..... EL51_5AI.HC0
Streets: (N-S) 51st Avenue (E-W) Elliot Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 AM Peak Hour-Pk Season-Improved Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	485	5	0	395	5	5	5	15	5	10	5
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	13	13	13	13	13	13	13	13	13	13	13	13
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	488	398
Potential Capacity: (pcph)	784	870
Movement Capacity: (pcph)	784	870
Prob. of Queue-free State:	0.99	0.98
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	490	400
Potential Capacity: (pcph)	1001	1105
Movement Capacity: (pcph)	1001	1105
Prob. of Queue-free State:	1.00	0.99
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	898	898
Potential Capacity: (pcph)	369	369
Capacity Adjustment Factor due to Impeding Movements	0.99	0.99
Movement Capacity: (pcph)	365	365
Prob. of Queue-free State:	0.97	0.98
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	905	902
Potential Capacity: (pcph)	317	318
Major LT, Minor TH Impedance Factor:	0.97	0.96
Adjusted Impedance Factor:	0.98	0.97
Capacity Adjustment Factor due to Impeding Movements	0.96	0.96
Movement Capacity: (pcph)	303	305

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Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	7	305				
EB	T	7	365	516	7.5	B	7.5
EB	R	19	870				
WB	L	7	303				
WB	T	12	365	401	9.6	B	9.6
WB	R	7	784				
NB	L	12	1105		3.3	A	0.1

Intersection Delay = 0.4

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File Name ..... EL51_5PI.HC0
Streets: (N-S) 51st Avenue (E-W) Elliot Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 PM Peak Hour-Pk Season-Improved Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1<	0	1	1<	0	0>	1<	0	0>	1<	0
Stop/Yield			N			N						
Volumes	10	510	0	5	605	10	0	5	15	0	0	5
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	8	8	8	8	8	8	8	8	8	8	8	8
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	510	610
Potential Capacity: (pcph)	764	680
Movement Capacity: (pcph)	764	680
Prob. of Queue-free State:	0.99	0.97
Step 2: LT from Major Street	**SB**	**NB**
Conflicting Flows: (vph)	510	615
Potential Capacity: (pcph)	980	873
Movement Capacity: (pcph)	980	873
Prob. of Queue-free State:	0.99	0.99
Step 3: TH from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1140	1135
Potential Capacity: (pcph)	275	277
Capacity Adjustment Factor due to Impeding Movements	0.98	0.98
Movement Capacity: (pcph)	269	271
Prob. of Queue-free State:	1.00	0.97
Step 4: LT from Minor Street	**WB**	**EB**
Conflicting Flows: (vph)	1145	1138
Potential Capacity: (pcph)	230	232
Major LT, Minor TH Impedance Factor:	0.95	0.98
Adjusted Impedance Factor:	0.96	0.98
Capacity Adjustment Factor due to Impeding Movements	0.94	0.98
Movement Capacity: (pcph)	216	226

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Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)		SharedCap Csh(pcph)	Avg.Total Delay		LOS	Delay By App
EB	T	7	271	>		>		>	7.9
EB	R	19	680	>	484	>	7.9	> B	
WB	R	7	764	>	764	>	4.8	> A	
NB	L	12	873			4.2		A	0.1
SB	L	7	980			3.7		A	0.0

Intersection Delay = 0.2

****

File Name ..... DO51_5AI.HC0
Streets: (N-S) 51st Avenue (E-W) Dobbins Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 AM Peak Hour-Pk Season-Improved Geometry

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1<	0	1	1<	0	1	1<	0
Volumes	20	405	75	50	345	10	20	70	20	75	50	75
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	13	13	13	13	13	13	13	13	13	13	13	13
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	22	56	22	84
RT Flow Rate	84	11	22	84
Approach Flow Rate	561	455	123	224
Proportion LT	0.04	0.12	0.18	0.38
Proportion RT	0.15	0.02	0.18	0.38
Opposing Approach Flow Rate	455	561	224	123
Conflicting Approaches Flow Rate	347	347	1016	1016
Proportion, Subject Approach Flow Rate	0.41	0.33	0.09	0.16
Proportion, Opposing Approach Flow Rate	0.33	0.41	0.16	0.09
Lanes on Subject Approach	3	2	2	2
Lanes on Opposing Approach	2	3	2	2
LT, Opposing Approach	56	22	84	22
RT, Opposing Approach	11	84	84	22
LT, Conflicting Approaches	106	106	78	78
RT, Conflicting Approaches	106	106	95	95
Proportion LT, Opposing Approach	0.12	0.04	0.38	0.18
Proportion RT, Opposing Approach	0.02	0.15	0.38	0.18
Proportion LT, Conflicting Approaches	0.31	0.31	0.08	0.08
Proportion RT, Conflicting Approaches	0.31	0.31	0.09	0.09
Approach Capacity	1013	740	373	415

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	561	1013	0.55	8.2	B
SB	455	740	0.61	10.3	C
EB	123	373	0.33	3.5	A
WB	224	415	0.54	7.8	B

Intersection Delay = 8.42
Level of Service (Intersection) = B

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File Name ..... DO51_5PI.HC0
Streets: (N-S) 51st Avenue (E-W) Dobbins Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 PM Peak Hour-Pk Season-Improved Geometry

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1<	0	1	1<	0	1	1<	0
Volumes	20	455	35	45	520	15	15	45	25	50	50	40
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	8	8	8	8	8	8	8	8	8	8	8	8
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

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Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	22	51	17	56
RT Flow Rate	39	17	28	45
Approach Flow Rate	572	652	96	157
Proportion LT	0.04	0.08	0.18	0.36
Proportion RT	0.07	0.03	0.29	0.29
Opposing Approach Flow Rate	652	572	157	96
Conflicting Approaches Flow Rate	253	253	1224	1224
Proportion, Subject Approach Flow Rate	0.39	0.44	0.06	0.11
Proportion, Opposing Approach Flow Rate	0.44	0.39	0.11	0.06
Lanes on Subject Approach	3	2	2	2
Lanes on Opposing Approach	2	3	2	2
LT, Opposing Approach	51	22	56	17
RT, Opposing Approach	17	39	45	28
LT, Conflicting Approaches	73	73	73	73
RT, Conflicting Approaches	73	73	56	56
Proportion LT, Opposing Approach	0.08	0.04	0.36	0.18
Proportion RT, Opposing Approach	0.03	0.07	0.29	0.29
Proportion LT, Conflicting Approaches	0.29	0.29	0.06	0.06
Proportion RT, Conflicting Approaches	0.29	0.29	0.05	0.05
Approach Capacity	1078	815	286	353

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Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	*	*	*	*	*
SB	*	*	*	*	*
EB	*	*	*	*	*
WB	*	*	*	*	*

Intersection Delay = *
Level of Service (Intersection) = *

*The range limits on this approach exceed the maximum.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 09-12-1997
Kirkham, Michael & Associates

Streets: (E-W) Dobbins Road (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: DO51_5AI.HC9
Area Type: Other 4-1-97 AM Peak
Comment: 2005 Total Traffic (improved geometry)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	1	1	1	1	<
Volumes	20	70	20	75	50	75	20	405	75	50	345	10
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds	*				Peds	*		
WB Left	*				SB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds	*				Peds	*		
NB Right					EB Right			
SB Right					WB Right			
Green	17.0A				Green	65.0A		
Yellow/AR	4.0				Yellow/AR	4.0		

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	185	927	0.119	0.200	19.1	C	19.9	C
	TR	325	1626	0.311	0.200	20.0	C		
WB	L	227	1133	0.371	0.200	20.6	C	21.0	C
	TR	306	1530	0.458	0.200	21.3	C		
NB	L	447	610	0.049	0.733	2.1	A	2.8	A
	T	1233	1681	0.369	0.733	2.9	A		
	R	1048	1429	0.080	0.733	2.2	A		
SB	L	358	488	0.156	0.733	2.4	A	2.7	A
	TR	1228	1674	0.325	0.733	2.8	A		

Intersection Delay = 7.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.388

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 09-12-1997
Kirkham, Michael & Associates

Streets: (E-W) Dobbins Road (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: DO51_5PI.HC9
Area Type: Other 4-1-97 PM Peak
Comment: 2005 Total Traffic (improved geometry)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	1	1	1	1	<
Volumes	15	45	25	50	50	40	20	455	35	45	520	15
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
WB Left	*				SB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
NB Right					EB Right				
SB Right					WB Right				
Green	17.0A				Green	65.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	227	1133	0.075	0.200	18.9	C	19.5	C
	TR	319	1593	0.248	0.200	19.7	C		
WB	L	253	1265	0.221	0.200	19.5	C	19.9	C
	TR	314	1568	0.322	0.200	20.1	C		
NB	L	225	307	0.098	0.733	2.2	A	3.0	A
	T	1233	1681	0.415	0.733	3.1	A		
	R	1048	1429	0.037	0.733	2.1	A		
SB	L	295	402	0.173	0.733	2.4	A	3.4	A
	TR	1228	1674	0.490	0.733	3.5	A		

Intersection Delay = 6.0 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.454

****

File Name ..... BA51_5AI.HC0
Streets: (N-S) 51st Avenue (E-W) Baseline Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 AM Peak Hour-Pk Season-Improved Geometry

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2<	0	1	1	1	1	1<	0	1	1<	0
Volumes	45	460	80	105	345	45	50	180	55	45	100	75
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	51	118	56	51
RT Flow Rate	90	51	62	84
Approach Flow Rate	658	557	320	247
Proportion LT	0.08	0.21	0.17	0.21
Proportion RT	0.14	0.09	0.19	0.34
Opposing Approach Flow Rate	557	658	247	320
Conflicting Approaches Flow Rate	567	567	1215	1215
Proportion, Subject Approach Flow Rate	0.37	0.31	0.18	0.14
Proportion, Opposing Approach Flow Rate	0.31	0.37	0.14	0.18
Lanes on Subject Approach	3	3	2	2
Lanes on Opposing Approach	3	3	2	2
LT, Opposing Approach	118	51	51	56
RT, Opposing Approach	51	90	84	62
LT, Conflicting Approaches	107	107	169	169
RT, Conflicting Approaches	146	146	141	141
Proportion LT, Opposing Approach	0.21	0.08	0.21	0.17
Proportion RT, Opposing Approach	0.09	0.14	0.34	0.19
Proportion LT, Conflicting Approaches	0.19	0.19	0.14	0.14
Proportion RT, Conflicting Approaches	0.26	0.26	0.12	0.12
Approach Capacity	863	896	476	444

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	658	863	0.76	18.1	C
SB	557	896	0.62	10.6	C
EB	*	*	*	*	*
WB	*	*	*	*	*

Intersection Delay = *
Level of Service (Intersection) = *

*The range limits on this approach exceed the maximum.

****

File Name ..... BA51_5PI.HC0
Streets: (N-S) 51st Avenue (E-W) Baseline Road
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 PM Peak Hour-Pk Season-Improved Geometry

All-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2<	0	1	1	1	1	1<	0	1	1<	0
Volumes	40	455	55	100	520	85	50	120	65	70	165	85
PHF	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89	.89
Grade		0			0			0			0	
MC's (%)	0	0	0	0	0	0	0	0	0	0	0	0
SU/RV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
CV's (%)	0	0	0	0	0	0	0	0	0	0	0	0
PCE's	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1

****

Volume Summary and Capacity Analysis WorkSheet

	NB	SB	EB	WB
LT Flow Rate	45	112	56	79
RT Flow Rate	62	96	73	96
Approach Flow Rate	618	792	264	360
Proportion LT	0.07	0.14	0.21	0.22
Proportion RT	0.10	0.12	0.28	0.27
Opposing Approach Flow Rate	792	618	360	264
Conflicting Approaches Flow Rate	624	624	1410	1410
Proportion, Subject Approach Flow Rate	0.30	0.39	0.13	0.18
Proportion, Opposing Approach Flow Rate	0.39	0.30	0.18	0.13
Lanes on Subject Approach	3	3	2	2
Lanes on Opposing Approach	3	3	2	2
LT, Opposing Approach	112	45	79	56
RT, Opposing Approach	96	62	96	73
LT, Conflicting Approaches	135	135	157	157
RT, Conflicting Approaches	169	169	158	158
Proportion LT, Opposing Approach	0.14	0.07	0.22	0.21
Proportion RT, Opposing Approach	0.12	0.10	0.27	0.28
Proportion LT, Conflicting Approaches	0.22	0.22	0.11	0.11
Proportion RT, Conflicting Approaches	0.27	0.27	0.11	0.11
Approach Capacity	875	917	441	460

****

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
NB	618	875	0.71	14.7	C
SB	792	917	0.86	26.7	D
EB	*	*	*	*	*
WB	*	*	*	*	*

Intersection Delay = *
Level of Service (Intersection) = *

*The range limits on this approach exceed the maximum.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 09-12-1997

Kirkham, Michael & Associates

Streets: (E-W) Baseline Road (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: BA51_5AI.HC9
Area Type: Other 4-1-97 AM Peak
Comment: 2005 Total Traffic (improved geometry)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	2	<	1	1	1
Volumes	50	180	55	45	100	75	45	460	80	105	345	45
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds	*				Peds	*		
WB Left	*				SB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds	*				Peds	*		
NB Right					EB Right			
SB Right					WB Right			
Green	30.0A				Green	52.0A		
Yellow/AR	4.0				Yellow/AR	4.0		

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	297	861	0.189	0.344	13.4	B	15.1	C
	TR	559	1623	0.472	0.344	15.4	C		
WB	L	224	651	0.227	0.344	13.6	B	14.3	B
	TR	542	1573	0.362	0.344	14.5	B		
NB	L	336	571	0.152	0.589	5.4	B	6.1	B
	TR	1936	3287	0.329	0.589	6.1	B		
SB	L	287	488	0.411	0.589	7.0	B	6.5	B
	T	990	1681	0.392	0.589	6.5	B		
	R	842	1429	0.061	0.589	5.1	B		

Intersection Delay = 8.9 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.433

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 09-12-1997

Kirkham, Michael & Associates

Streets: (E-W) Baseline Road (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: BA51_5PI.HC9
Area Type: Other 4-1-97 PM Peak
Comment: 2005 Total Traffic (improved geometry)

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	2	<	1	1	1
Volumes	50	120	65	70	165	85	40	455	55	100	520	85
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
WB Left	*				SB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds	*				Peds	*			
NB Right					EB Right				
SB Right					WB Right				
Green	30.0A				Green	52.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	209	607	0.268	0.344	13.9	B	14.5	B
	TR	549	1593	0.379	0.344	14.6	B		
WB	L	283	821	0.279	0.344	14.0	B	15.4	C
	TR	550	1596	0.511	0.344	15.8	C		
NB	L	158	268	0.285	0.589	6.2	B	6.0	B
	TR	1947	3307	0.309	0.589	6.0	B		
SB	L	312	529	0.360	0.589	6.6	B	7.6	B
	T	990	1681	0.590	0.589	8.2	B		
	R	842	1429	0.114	0.589	5.3	B		

Intersection Delay = 9.4 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.561

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 09-12-1997
Kirkham, Michael & Associates

Streets: (E-W) Southern Avenue (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: SO51_5AI.HC9
Area Type: Other 6-23-97 AM Peak
Comment: 2005 Pk Season w/Casino, Imp. Geometry

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	2	<	1	2	1
Volumes	30	110	15	25	50	95	15	480	30	160	425	15
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds	*				Peds	*		
WB Left	*				SB Left	*	*	
Thru	*				Thru	*	*	
Right	*				Right	*	*	
Peds	*				Peds		*	
NB Right					EB Right			
SB Right					WB Right			
Green	30.0A				Green	8.0A	40.0A	
Yellow/AR	4.0				Yellow/AR	4.0	4.0	

Cycle Length: 90 secs Phase combination order: #1 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	316	918	0.108	0.344	13.0	B	13.6	B
	TR	569	1651	0.248	0.344	13.7	B		
WB	L	343	996	0.082	0.344	12.9	B	13.9	B
	TR	522	1515	0.312	0.344	14.1	B		
NB	L	254	558	0.067	0.456	8.9	B	10.6	B
	TR	1518	3333	0.396	0.456	10.6	B		
SB	L	336	1597	0.536	0.233	7.4	B	6.2	B
	T	1980	3363	0.253	0.589	5.8	B		
	R	842	1429	0.020	0.589	5.0	A		

Intersection Delay = 9.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 9.0 sec Critical v/c(x) = 0.432

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4a 09-12-1997
Kirkham, Michael & Associates

Streets: (E-W) Southern Avenue (N-S) 51st Avenue
Analyst: Kirkham Michael File Name: SO51_5PI.HC9
Area Type: Other 6-23-97 PM Peak
Comment: 2005 Pk Season with Casino, Imp. Geometry

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	<	1	1	<	1	2	<	1	2	1
Volumes	30	60	20	50	175	130	20	490	30	125	615	30
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			0			0			0			0
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	*				NB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds	*				Peds	*		
WB Left	*				SB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds	*				Peds	*		
NB Right					EB Right			
SB Right					WB Right			
Green	30.0A				Green	52.0A		
Yellow/AR	4.0				Yellow/AR	4.0		

Cycle Length: 90 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	168	487	0.203	0.344	13.5	B	13.3	B
	TR	583	1693	0.153	0.344	13.2	B		
WB	L	452	1311	0.124	0.344	13.1	B	16.5	C
	TR	567	1646	0.605	0.344	17.1	C		
NB	L	250	424	0.088	0.589	5.2	B	6.0	B
	TR	2053	3487	0.299	0.589	6.0	B		
SB	L	317	538	0.442	0.589	7.3	B	6.4	B
	T	2072	3519	0.350	0.589	6.2	B		
	R	880	1495	0.039	0.589	5.0	A		

Intersection Delay = 8.6 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.502

****

File Name ..... BR51_5AI.HC0
Streets: (N-S) 51st Avenue (E-W) Broadway Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 AM Peak Hour-Pk Season-Improved Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2<	0	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	40	575			510	30	70		105			
PHF	.89	.89			.89	.89	.89		.89			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	13	13			13	13	13		13			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

****

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		270
Potential Capacity: (pcph)		1010
Movement Capacity: (pcph)		1010
Prob. of Queue-free State:		0.87

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		540
Potential Capacity: (pcph)		879
Movement Capacity: (pcph)		879
Prob. of Queue-free State:		0.94

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1140
Potential Capacity: (pcph)		198
Major LT, Minor TH Impedance Factor:		0.94
Adjusted Impedance Factor:		0.94
Capacity Adjustment Factor due to Impeding Movements		0.94
Movement Capacity: (pcph)		187

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	87	187		35.7	E	
							10.2
EB	R	130	1010		4.1	A	
NB	L	50	879		4.3	A	0.3

Intersection Delay = 1.6

****

File Name ..... BR51_5PI.HC0
Streets: (N-S) 51st Avenue (E-W) Broadway Road
Major Street Direction.... NS
Length of Time Analyzed... 60 (min)
Analyst..... Kirkham Michael
Date of Analysis..... 6/23/97
Other Information..... 2005 PM Peak Hour-Pk Season-Improved Geometry

Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2<	0	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	55	625			760	50	25		50			
PHF	.89	.89			.89	.89	.89		.89			
Grade		0			0			0			0	
MC's (%)	0	0			0	0	0		0			
SU/RV's (%)	0	0			0	0	0		0			
CV's (%)	8	8			8	8	8		8			
PCE's	1.1	1.1			1.1	1.1	1.1		1.1			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

WorkSheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		405
Potential Capacity: (pcph)		863
Movement Capacity: (pcph)		863
Prob. of Queue-free State:		0.93

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		810
Potential Capacity: (pcph)		630
Movement Capacity: (pcph)		630
Prob. of Queue-free State:		0.89

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		1465
Potential Capacity: (pcph)		122
Major LT, Minor TH Impedance Factor:		0.89
Adjusted Impedance Factor:		0.89
Capacity Adjustment Factor due to Impeding Movements		0.89
Movement Capacity: (pcph)		109

****

Intersection Performance Summary

Movement		FlowRate v(pcph)	MoveCap Cm(pcph)	SharedCap Csh(pcph)	Avg.Total Delay	LOS	Delay By App
EB	L	31	109		46.0	F	
							10.2
EB	R	62	863		4.5	A	
NB	L	68	630		6.4	B	0.5

Intersection Delay = 0.9

$c_{m,l}$ = movement capacity of left-turn movement in shared lane (pcph);
$c_{m,t}$ = movement capacity of through movement in shared lane (pcph); and
$c_{m,r}$ = movement capacity of right-turn movement in shared lane (pcph).

Only those movements included in the shared lane are included in the equation. If the shared lane includes only right-turn and through movements, both numerator and denominator terms for left-turners are deleted in the equation.

It is important to remember that the methodology implicitly assumes that an exclusive lane is provided to all left-turning traffic from the major street. In situations on a single-lane major street approach where a left-turn lane is not provided, it is possible for major street through (and possibly right-turning) traffic to be delayed by left-turning vehicles waiting for an acceptable gap. To account for this possibility, the factors $p^*_{0,1}$ and $p^*_{0,4}$ may be computed as an indication of the probability that there will be no queue in the respective major street shared lanes:

$$p^*_{0,j} \approx 1 - \frac{1 - p_{0,j}}{1 - \left[\frac{V_{i1}}{s_{i1}} + \frac{V_{i2}}{s_{i2}}\right]} \qquad (10\text{-}10)$$

where

j = 1,4 (major street left-turning traffic streams);
$i1$ = 2,5 (major street through traffic streams);
$i2$ = 3,6 (major street right-turning traffic streams);
s_{i1} = saturation flow rate for major street through traffic streams (vph) (this parameter can be measured in the field);
s_{i2} = saturation flow rate for major street right-turning traffic (vph) (this parameter can be measured in the field); and
V_{i2} = 0 if an exclusive right-turn lane is provided.

By using $p^*_{0,1}$ and $p^*_{0,4}$ instead of $p_{0,1}$ and $p_{0,4}$ (as computed from Equation 10-3), the additional influence of the potential for queues on a major street with shared left-turn lanes may be properly taken into account.

LEVEL OF SERVICE CRITERIA

The level of service criteria are given in Table 10-3. As used here, total delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. In situations where the degree of saturation is greater than about 0.9, the amount of average total delay is also dependent on the length of the analysis period. For a 15-min analysis period, an estimate of average total delay is given by the following equation:

$$D = \frac{3600}{c_{m,x}} + 900T\left[\frac{V_x}{c_{m,x}} - 1 + \sqrt{\left(\frac{V_x}{c_{m,x}} - 1\right)^2 + \frac{\left(\frac{3600}{c_{m,x}}\right)\left(\frac{V_x}{c_{m,x}}\right)}{450T}}\right] \qquad (10\text{-}11)$$

where

D = average total delay (sec/veh);
V_x = volume for movement x, expressed as an hourly flow rate;
$c_{m,x}$ = capacity of movement x, expressed as an hourly flow rate; and
T = analysis period (hr) (for a 15-min period, use $T = 0.25$).

This equation is depicted graphically in Figure 10-7 for a discrete range of capacities and a 15-min analysis time period.

Average total delay less than 5 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so this range is appropriate. To remain consistent with the AWSC intersection analysis procedure described later in this chapter, a total delay of 45 sec/veh is assumed as the break point between LOS E and F.

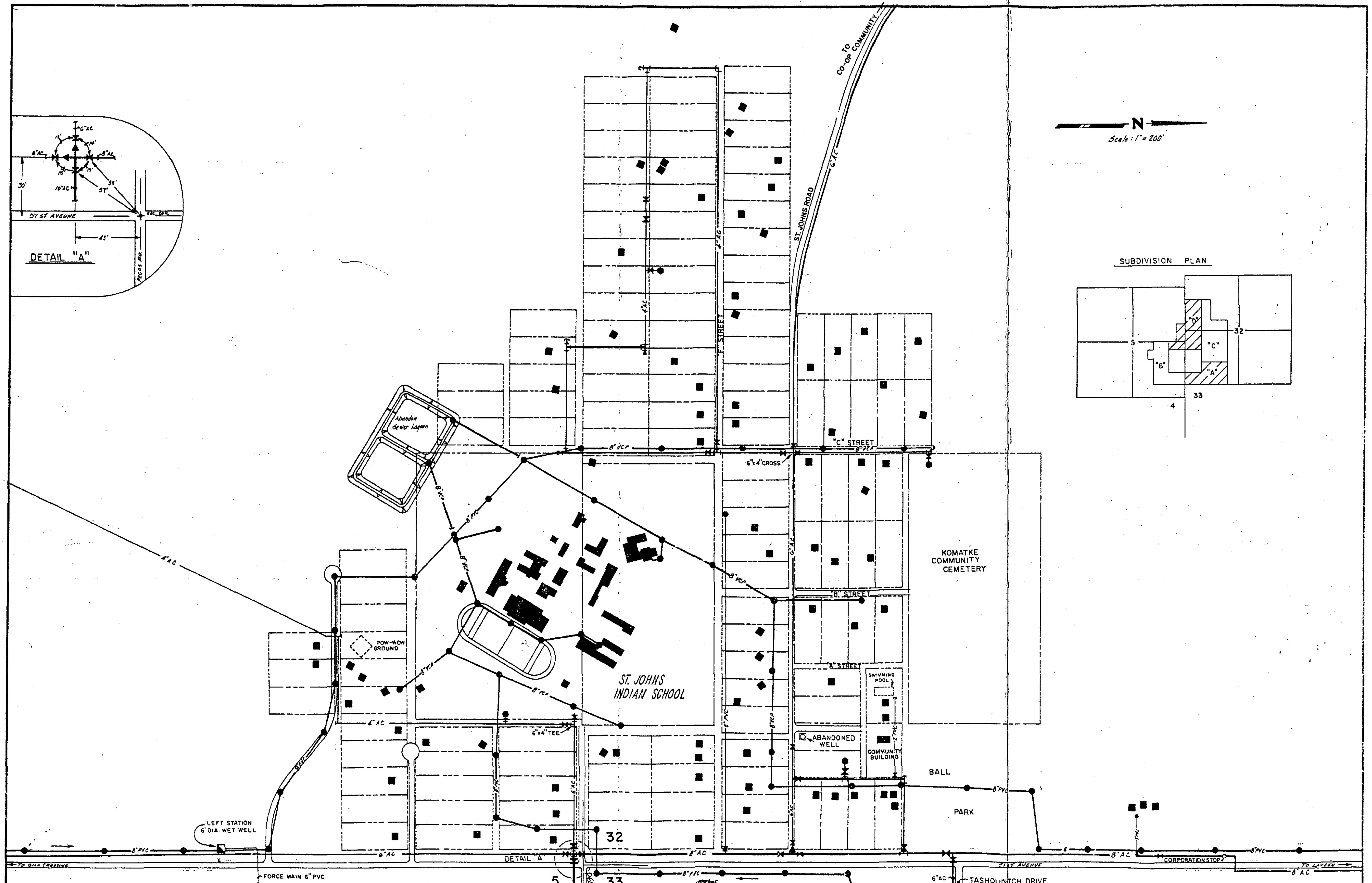
The proposed level of service criteria for TWSC intersections are somewhat different from the criteria used in Chapter 9 for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, whereas drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection.

A movement, most often a left-turn movement, can sometimes have a poorer level of service if it is given a separate lane than if it shares a lane with another movement (usually a through movement). This is not inconsistent in terms of the stated criteria. Left-turn movements will generally experience longer total delays than other movements because of the nature and priority of the movement. If left turns are placed in a shared lane, the *average total delay to vehicles in that lane* may indeed be less than the average total delay to left turns in a separate lane. However, all vehicles in the shared lane experience increased total delay over the condition in which left turns have a separate lane. Consider the following:

1. Ten left-turners will experience an average total delay of 10 sec if they have an exclusive lane and of 15 sec if they share a lane with a through movement.

TABLE 10-3. LEVEL OF SERVICE CRITERIA FOR TWSC INTERSECTIONS

LEVEL OF SERVICE	AVERAGE TOTAL DELAY (SEC/VEH)
A	≤5
B	>5 and ≤10
C	>10 and ≤20
D	>20 and ≤30
E	>30 and ≤45
F	>45



NO.	DATE REVISED	APPR	DESCRIPTION

DRAWN BY: JC
DATE: 1-92

CHECKED BY: TAM
DATE: 5-89

INDIAN HEALTH SERVICE
PHOENIX AREA OFFICE
OFFICE OF ENVIRONMENTAL HEALTH

DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE

LOCATION: ST JOHNS MISSION
GILA RIVER INDIAN RESERVATION
MARICOPA COUNTY ARIZONA

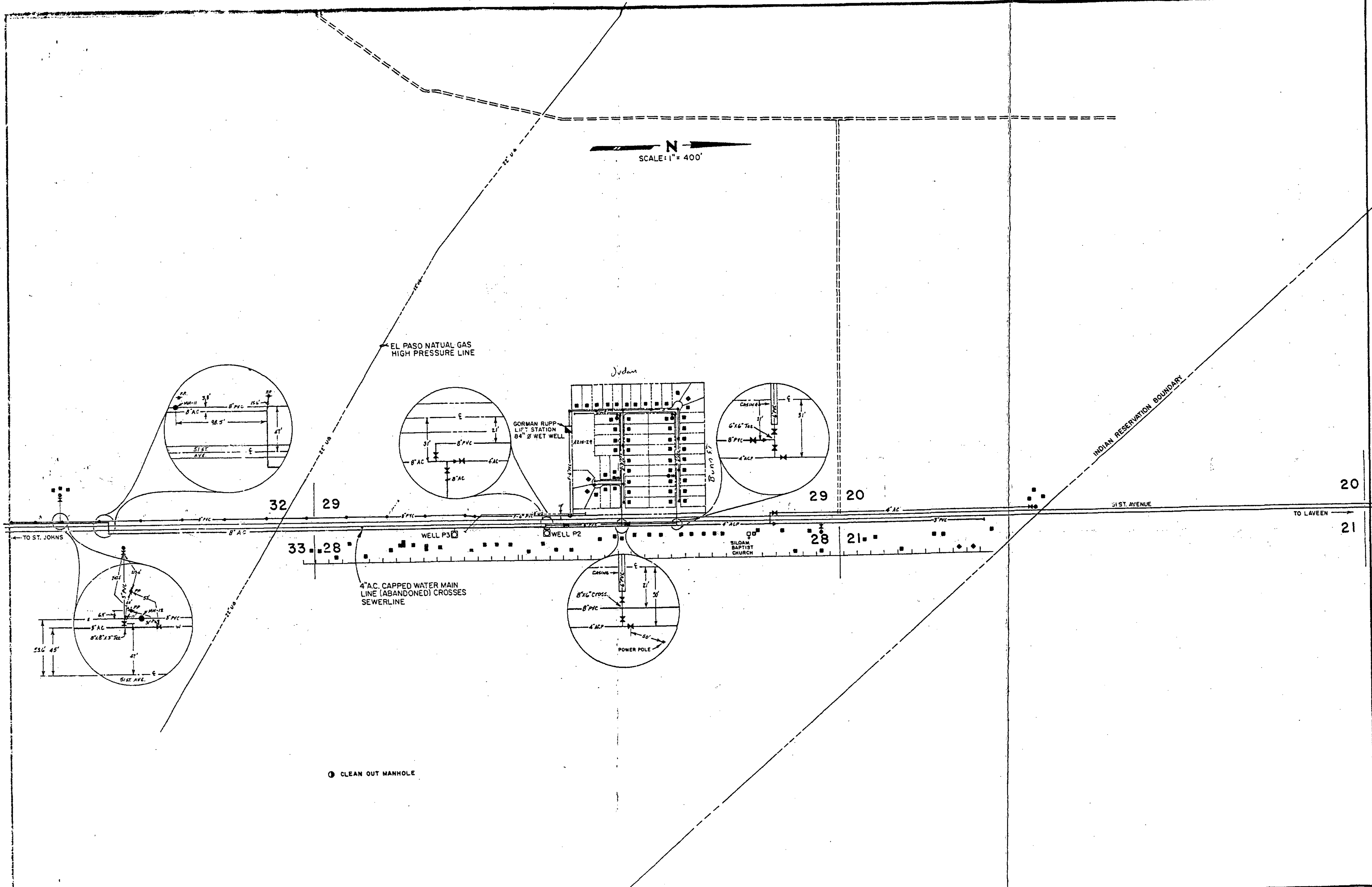
TITLE: DISTRICT 6 WATER & SEWER SYSTEM

DISTRICT: WESTERN ARIZONA
PROJECT NO.

SHEET NO. 4 OF 10 TOTAL SHTS

DRAWING NO. 289-09

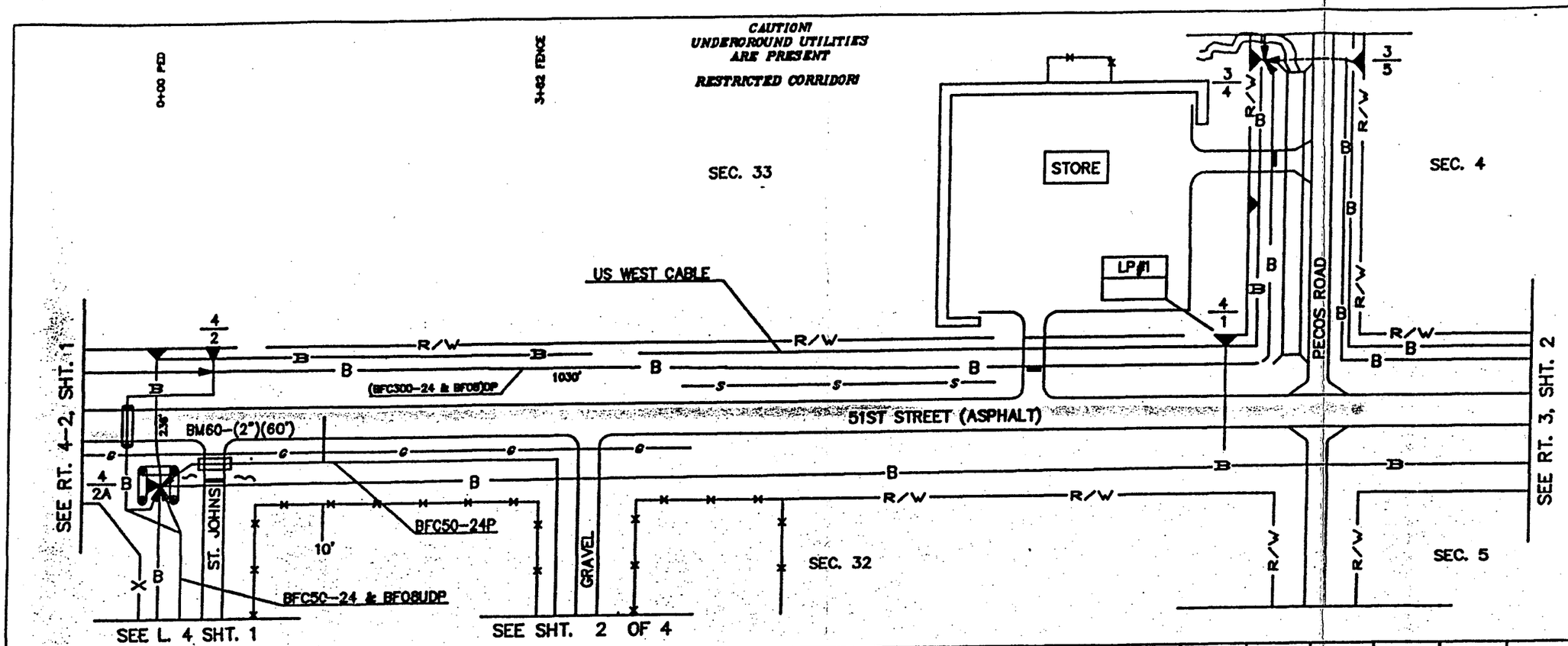
U.S. GOVERNMENT PRINTING OFFICE: 1985 — 679-184



DRAWN BY: J.C. DATE: 1-92	CHECKED BY: T.A.M. DATE: 5-89	DEPARTMENT OF HEALTH AND HUMAN SERVICES PUBLIC HEALTH SERVICE INDIAN HEALTH SERVICE	LOCATION: 51ST AVENUE	TITLE: DISTRICT WATER & SEWER SYSTEM	DISTRICT WESTERN ARIZONA; SHEET NO. 5 OF 10 TOTAL SHTS; PROJECT NO.; DRAWING NO. 289-04

INDIAN HEALTH SERVICE PHOENIX AREA OFFICE OFFICE OF ENVIRONMENTAL HEALTH

APPR. DESCRIPTION

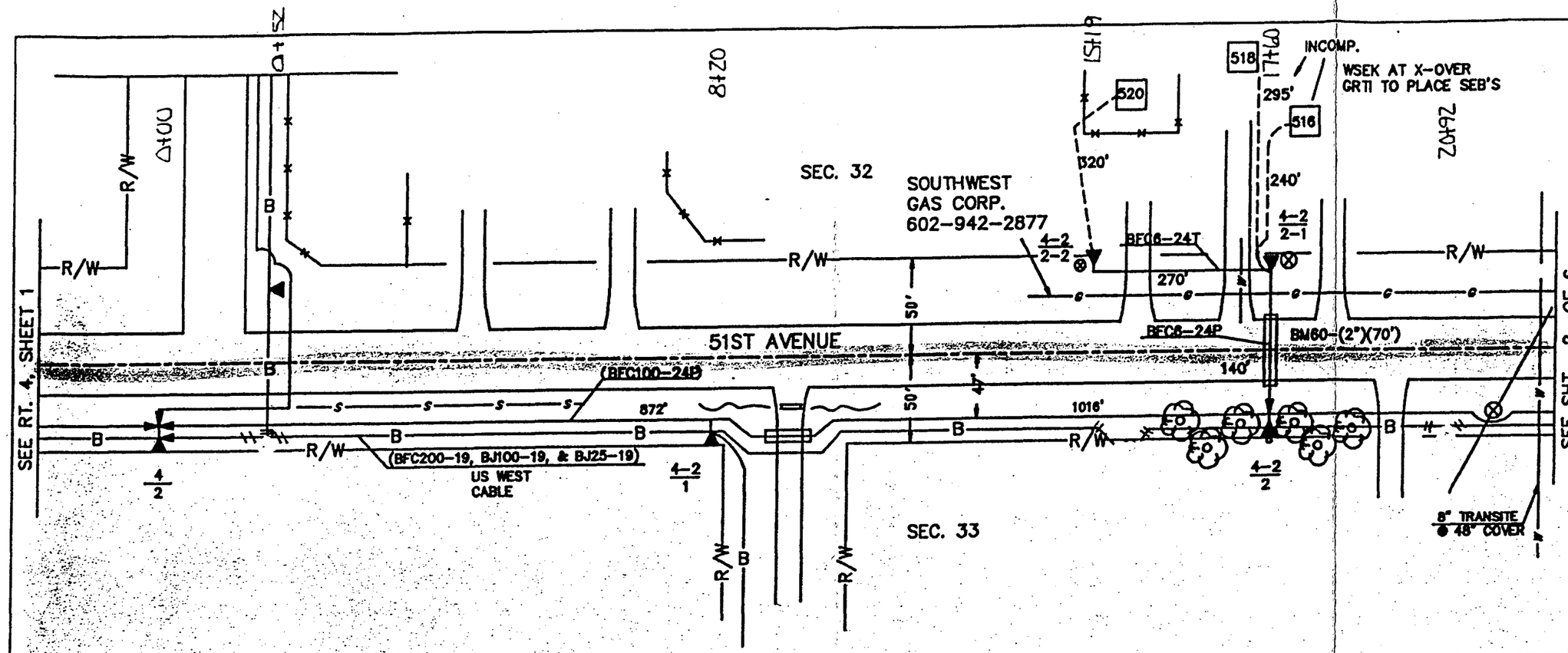


CO.	GRTI
EXCH.	KOMATKE
COUNTY	PINAL
ROUTE	4-2A
SHEET	1 OF 4
REA PROJECT	AZ 511-A
J.O. NO.	PHASE 2
CONST. SHT	OF
MAP REF.	SCHM-3
TWP 1S / RGE 2E / SEC	
TAX DIST.	
AS BUILT DATE	1/92

TAX CODES	
CITY	CO
ESU	FIRE
HOSP	SCH
SPC	ST

KOM42A_1

POLE OR PED NO.	POLE OR PED	POLE YEAR	POLE OWN.	WBD													POLE OR PED NO.	SUB NO.						MISC. NOTES
4/2A				(1)																				
				(1)																				TAB SHEET 1 of 1

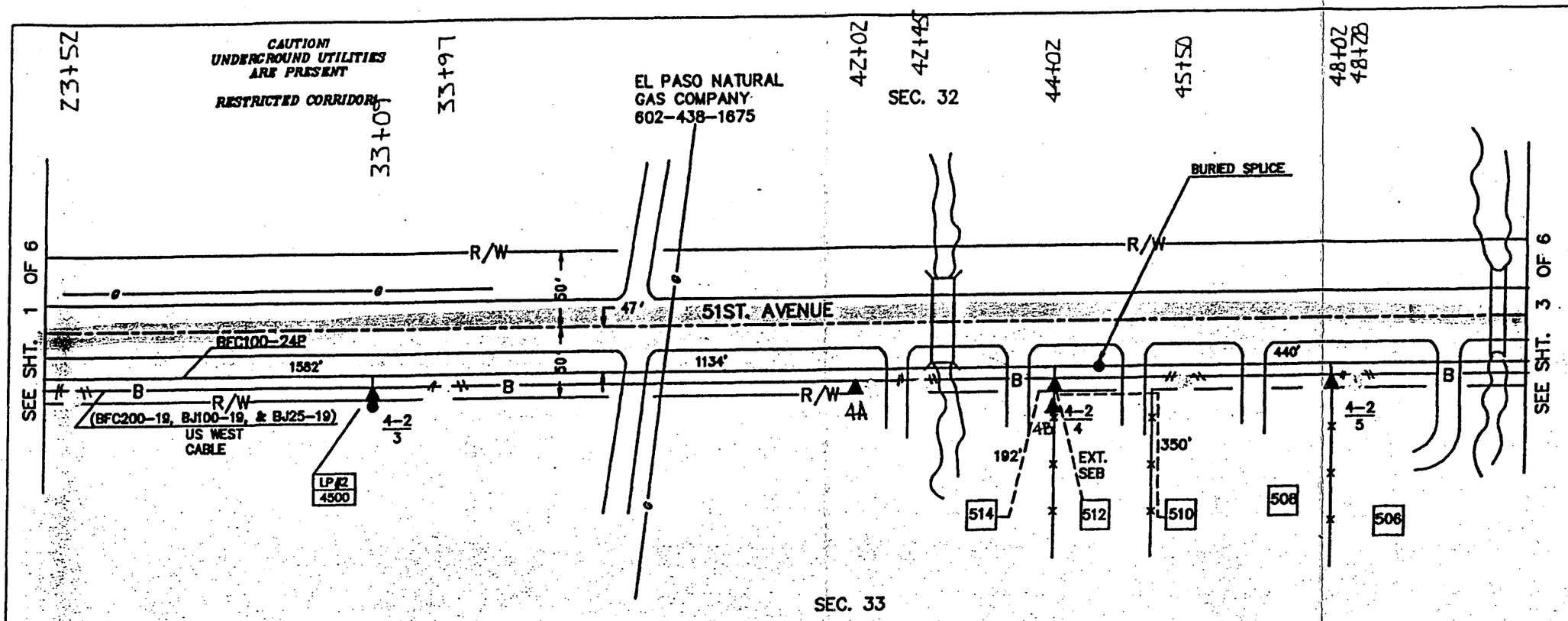


CO.	GRTI	
EXCH.	KOMATKE	
COUNTY	PINAL	
ROUTE	4-2	
SHEET	1 OF 6	
REA PROJECT	AZ 511-A	
J.O. NO.	PHASE 2	
CONST. SHT	OF	
MAP REF.	SCHM-3	
TWP 1S	RGE 2E	SEC
TAX DIST.		
AS BUILT DATE	5/92	
TAX CODES		
CITY	CO	
ESU	FIRE	
HOSP	SCH	
SPC	ST	
KOM42_1		

POLE OR PED NO.	POLE OR PED	POLE YEAR	POLE OWN.	BFC6-24P	BFC6-24T	BFC100-24P	BJ ZM-19	BM2A-1	BM60-(2)	BM61	HC-1	WBD	BMZ				POLE OR PED NO.	SUB NO.	BM83	MP1-JF2	SEBP2-22		
				1991	0592	1991	90																
1	BD5C					(0.872)	0.928						1				2-1	516					
2	BD3C					(1.016)				(25)		(1)	1				2-1	518					
2-1	(BD3C)			(0.122)				(1)	(70)		(0.06)						2-2	520	(1)	(1)	(0.320)		
2-2	(BD3)				(0.270)						(0.06)												
				(0.122)	(0.270)	(1.888)	0.928	(1)	(70)	(25)	(0.120)	(1)	2						(1)	(1)	(0.320)		

MISC. NOTES

TAB SHEET 1 of 1

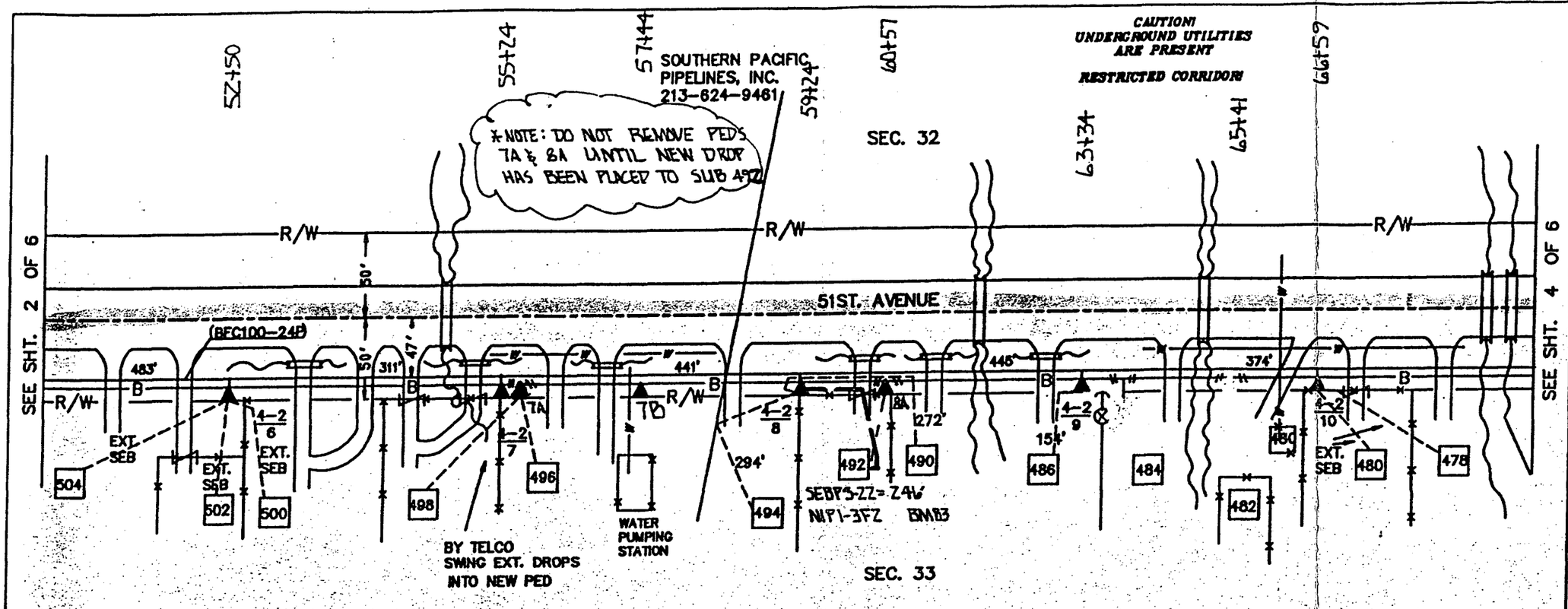


CO.	GRTI
EXCH.	KOMATKE
COUNTY	PINAL
ROUTE	4-2
SHEET	2 OF 6
REA PROJECT	AZ 511-A
J.O. NO.	PHASE 2
CONST. SHT	OF
MAP REF.	SCHM-3
TWP 1S	RGE 2E SEC
TAX DIST.	
AS BUILT DATE	5/92

TAX CODES	
CITY	CO
ESU	FIRE
HOSP	SCH
SPC	ST

KOM42_2

POLE OR PED NO.	POLE OR PED	POLE YEAR	POLE OWN.	BFC100-24P 1991	BA3	BJ 200-19 90	BFC 200-24	BM2	POLE OR PED NO.	SUB NO.	BM83	NIP1-3F2	SEBP2-22	MISC. NOTES
3	(BD4A)			(1.582)	(1)					506				
4	BD4C			(1.134)				1		508				
5	(BD3)			(0.440)					4	510	(1)	(1)	(0.350)	
4A	(BD7A)				(1)	3.520			4	512				
4B	(BD5)						0.244		4	514	(1)	(1)	(0.192)	
				(3.156)	(1)	3.520	0.244	1			(2)	(2)	(0.542)	TAB SHEET 1 of 1



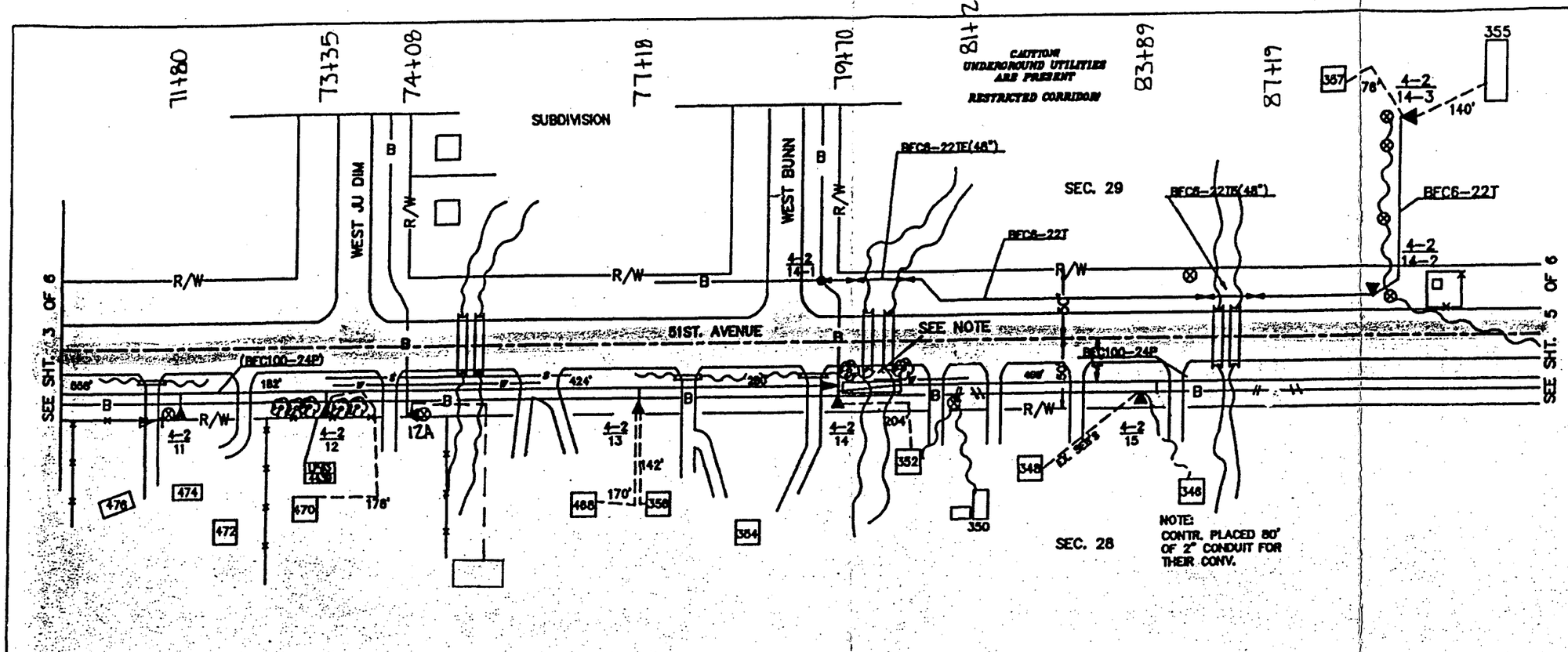
CO.	GRTI
EXCH.	KOMATKE
COUNTY	PINAL
ROUTE	4-2
SHEET	3 OF 6
REA PROJECT	AZ 511-A
J.O. NO.	PHASE 2
CONST. SHT	OF
MAP REF.	SCHM-3
TWP 1S / RGE 2E / SEC	
TAX DIST.	
AS BUILT DATE	5/92
TAX CODES	
CITY /	CO
ESU	FIRE
HOSP	SCH
SPC	ST
KOM42_3	

POLE OR PED NO.	POLE OR PED	POLE YEAR	POLE OWN.	BFC100-24P 1991	BM2	EJ Z00-19 90
10	(BD7)			(0.374)		0.980
6	(BD3E)			(0.483)	1	
7	(BD3)			(0.311)		
8	(BD3)			(0.441)		
9	(BD3)			(0.445)		
7A	(BD2)					
8A	(BD3)					
7B	BD5Z				1	1.420
				(2.054)	2	2.400

POLE OR PED NO.	SUB NO.	BM83	NIP1-3F2	SEBP2-22	SEB 3-22	
	480					
	482					
	484					
	492					
10	478	1	1		0.357	
10	480					
6	500					
6	502					
6	504					
7	498					
8	490	(1)	(1)	(0.272)		
8	494	(1)	(1)	(0.294)		
8	496					
9	486	(1)	(1)	(0.154)		
		(3)	(3)	(0.720)		

MISC. NOTES

TAB SHEET 1 of 1

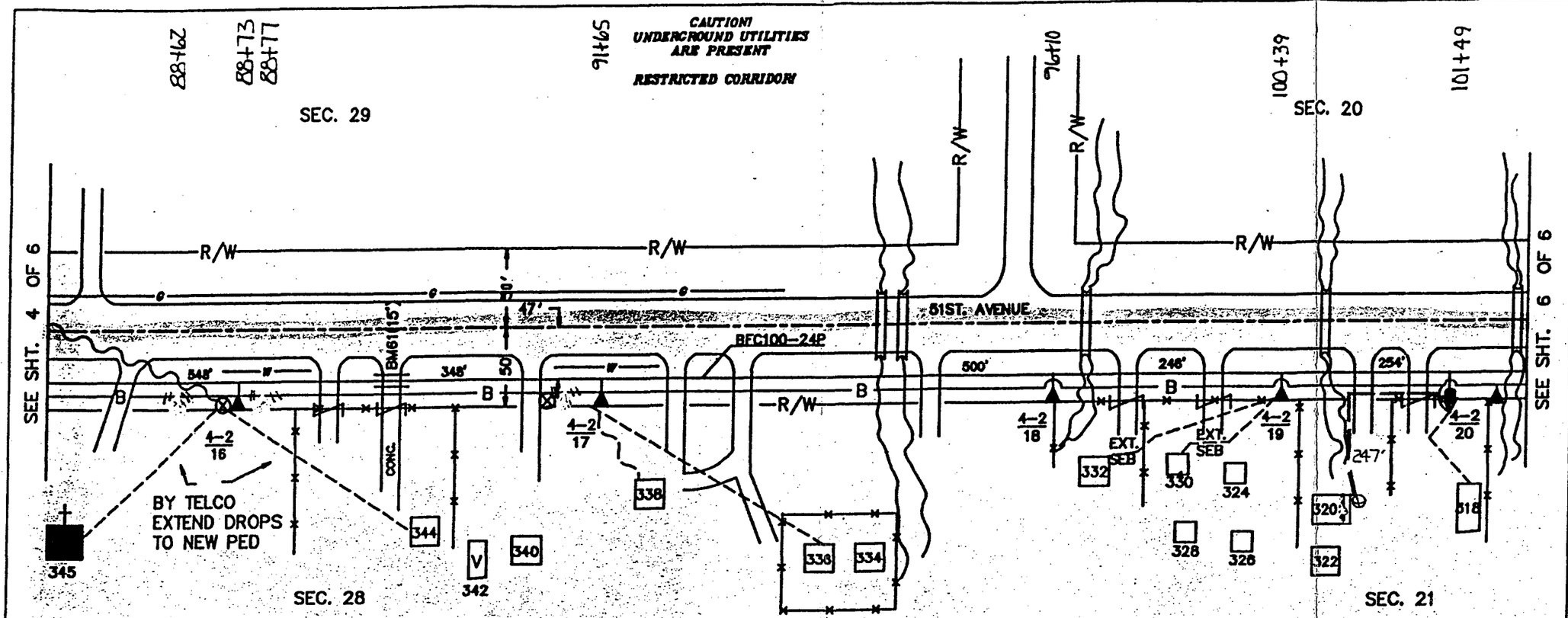


CO.	GRTI
EXCH.	KOMATKE
COUNTY	PINAL
ROUTE	4-2
SHEET	4 OF 6
REA PROJECT	AZ 511-A
J.O. NO.	PHASE 2
CONST. SHT	OF
MAP REF.	SCHM-3
TWP 1S	RGE 2E SEC
TAX DIST.	
AS BUILT DATE	5/92
TAX CODES	
CITY	CO
ESU	FIRE
HOSP	SCH
SPC	ST
KOM42_4	

POLE OR PED NO.	POLE OR PED	POLE YEAR	POLE OWN.	BFC6-22T	BFC6-22TE (48")	BFC100-24P 1991	BM2A-1	BM53X	*BM60-(2)	HC-1	BM7	BJ Z00-P1				
11	(BD3)					(0.558)										
12	(BD4)					(0.182)										
13	(BD3)					(0.424)										
14	BD5C					(0.280)					1	1.388				
14-1																
14-2	(BD3C)			(0.912)	(.06)		(1)	(1)		(0.06)						
14-3	(BD3C)			(0.724)			(1)			(0.06)						
15	(BD4)					(0.458)										
12A	BD3C										1					
				(1.636)	(0.060)	(1.902)	(2)	(1)	(80)	(0.120)	(1) 2	(2) 1.388				

POLE OR PED NO.	SUB NO.	BM83	BM84	MP1-3F2	SEBP2-22	MISC. NOTES
	350					
	354					
	472					
	474					
	476					
12	470	(1)		(1)	(0.178)	
13	356	(1)		(1)	(0.142)	
13	468	(1)		(1)	(0.170)	
14	352	(1)		(1)	(0.204)	
14-3	355	(1)	(1)	(1)	(0.140)	
14-3	357	(1)		(1)	(0.076)	
15	346					
15	348					
		(6)	(1)	(6)	(0.910)	

TAB SHEET 1 of 1



CO.	GRTI
EXCH.	KOMATKE
COUNTY	PINAL
ROUTE	4-2
SHEET	5 OF 6
REA PROJECT	AZ 511-A
J.O. NO.	PHASE 2
CONST. SHT	- OF -
MAP REF.	SCHM-3
TWP 1S	RGE 2E SEC
TAX DIST.	
AS BUILT DATE	5/92

TAX CODES

CITY	CO
ESU	FIRE
HOSP	SCH
SPC	ST

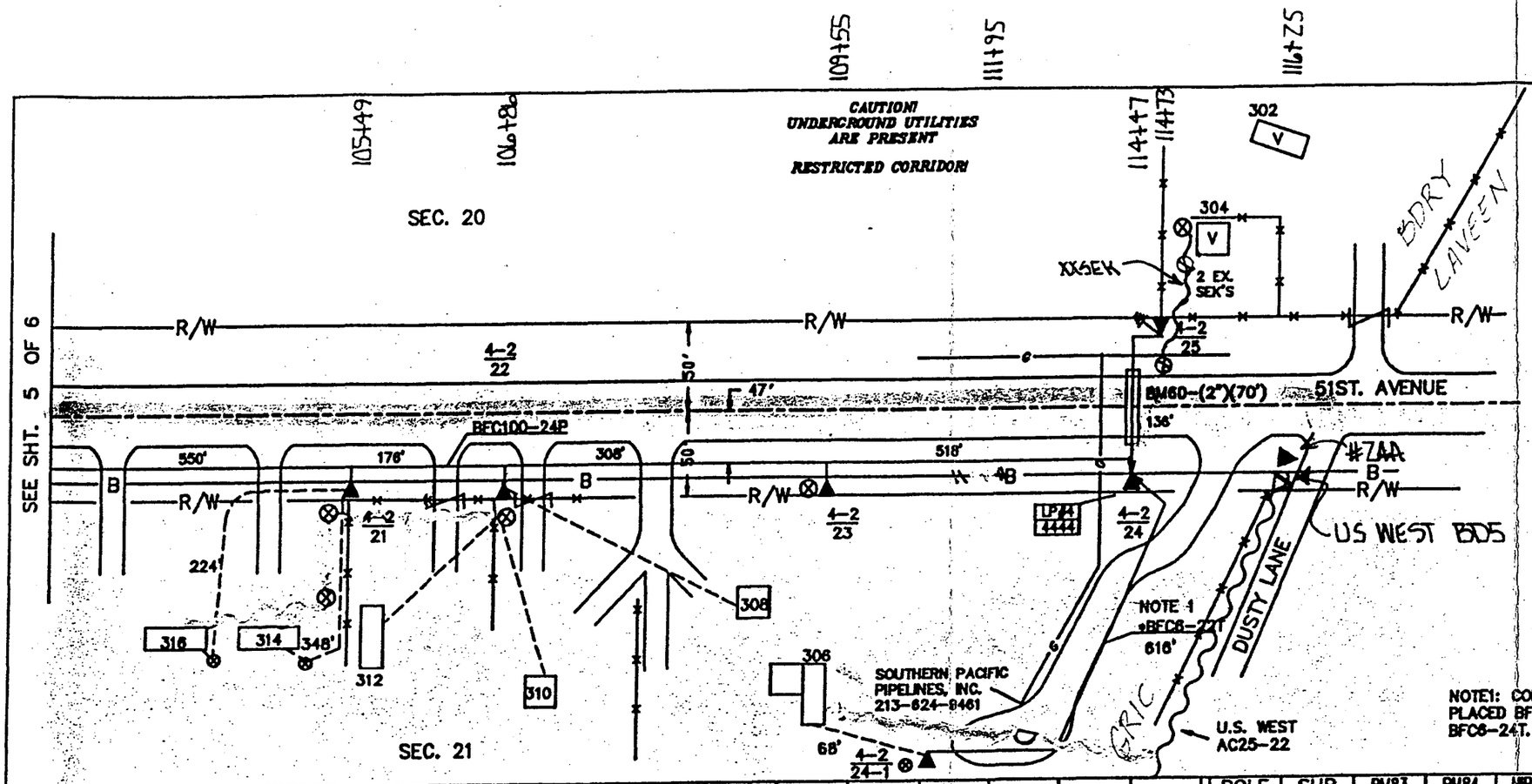
KOM42_5

POLE OR PED NO.	POLE OR PED	POLE YEAR	POLE OWN.	BFC100-24P 1991	BM2A-1	BM61	HC-1	WBD	XXBD	BMZ	BA3	BJ 200-19
16	(BD4C)			(0.540)	(1)		(1.00)		(1)			
17	(BD4)			(0.348)		(15)	(0.01)		(1)			
18	(BD3)			(0.500)								
19	(BD4)			(0.246)					(1)			
20	(BD3A)			(0.254)				(1)			(1)	Z.782
20B	BD5C									1		
				(1.888)	(1)	(15)	(1.010)	(1)	(3)	1	(1)	Z.782

POLE OR PED NO.	SUB NO.	BM83	MP1-JF2	SEBP2-22	BM 84
20	320	1	1	0.247	1
	322				
	324				
	326				
	328				
	340				
	342				
16	344				
16	345				
17	334				
17	336				
17	338	(1)	(1)	(0.092)	
19	330				
19	332				
20	318				
		(1)	(1)	(0.092)	

MISC. NOTES

TAB SHEET 1 of 1



NOTE1: CONTR. ACCIDENTILLY PLACED BFC6-22T INSTEAD OF BFC6-24T.

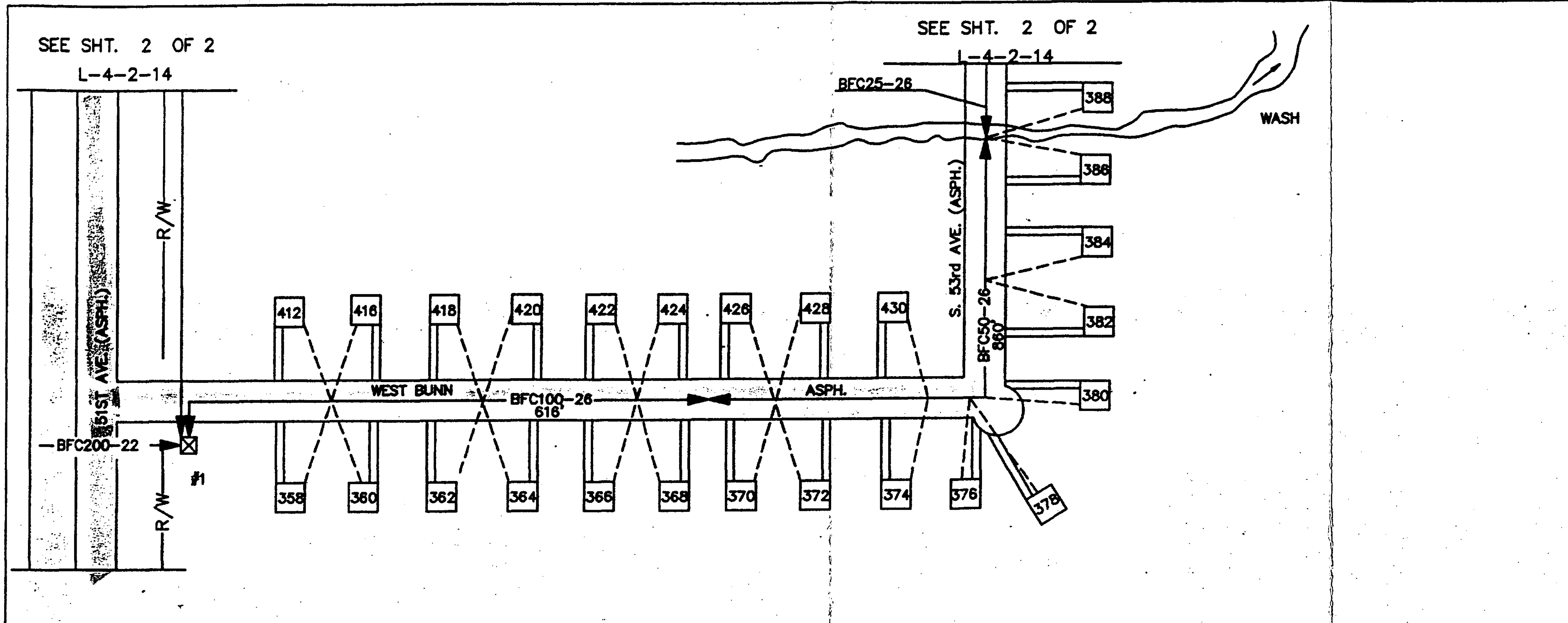
CO.	GRTI
EXCH.	KOMATKE
COUNTY	PINAL
ROUTE	4-2
SHEET	6 OF 6
REA PROJECT	AZ 511-A
J.O. NO.	PHASE 2
CONST. SHT	OF
MAP REF.	SCHM-3
TWP 1S / RGE 2E / SEC	
TAX DIST.	
AS BUILT DATE	5/92
TAX CODES	
CITY	CO
ESU	FIRE
HOSP	SCH
SPC	ST
KOM42_6	

MISC. NOTES

POLE OR PED NO.	POLE OR PED	POLE YEAR	POLE OWN.	#BFC6-22T 0592	BFC100-24P 1991	BM2 (1/2) (5)	BM2A-1	BM60-(2)	HC-1	WBO	EJ ZA0-19						POLE OR PED NO.	SUB NO.	BM83	BM84	MP1-3F2	SEBP2-22	
21	(BD3)				(0.550)				(0.02)									302					
22	(BD3)				(0.176)					(1)								304					
23	(BD3C)				(0.308)		(1)										21	314	(1)	(1)	(1)	(0.348)	
24	(BD3)				(0.518)				(0.02)								21	316	(1)	(1)	(1)	(0.224)	
24-1	(BD3C)			(0.616)			(1)		(0.06)								22	308					
25	(BD3C)				(0.136)	(1)		(70)	(1.00)								22	310					
																	22	312					
24A	(BD7)										1.558						24-1	306	(1)	(1)	(1)	(0.068)	
				(0.616)	(1.688)	(1)	(2)	(70)	(1.100)	(1)	1.558								(3)	(3)	(3)	(0.640)	

TAB SHEET 1 of 1

SUPPLEMENTAL



CO.	GILA RIVER TELECOMM., INC.
EXCH.	KOMATKE
COUNTY	MARICOPA
ROUTE	4-2-14
SHEET	1 OF 2
REA PROJECT	AZ 511-A
J.O. NO.	RETAINED
CONST. SHT	OF
CA. SCHM.	
TWP 1S	RGE 2E SEC 31
TAX DIST.	
AS BUILT DATE	

TAX CODES

CITY		CO	
ESU		FIRE	
HOSP		SCH	
SPC		ST	

KOM42141

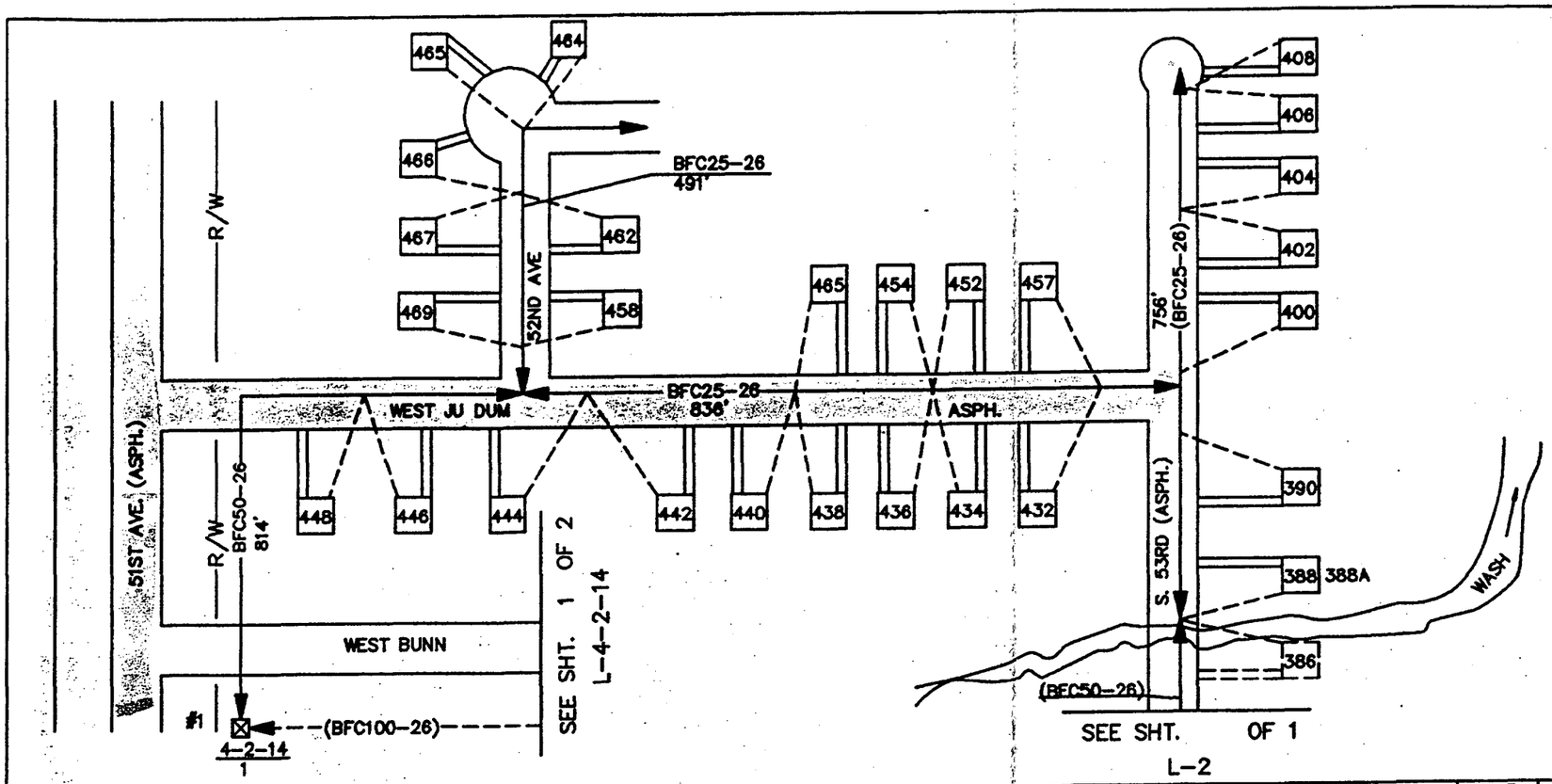
POLE OR PED NO.	POLE OR PED	POLE YEAR	POLE OWN.	BFC50-26	BFC100-26
1	(SAI)			(0.860)	(0.616)
				(0.860)	(0.616)

POLE OR PED NO.	SUB NO.
1	358
1	360
1	362
1	364
1	366
1	368
1	370
1	372
1	374
1	376
1	378
1	380
1	382
1	384
1	386
1	388
1	412
1	416

MISC. NOTES

TAB SHEET 1 of 1

SUPPLEMENTAL



CO.	GILA RIVER TELECOMM., INC.
EXCH.	KOMATKE
COUNTY	MARICOPA
ROUTE	4-2-14
SHEET	2 OF 2
REA PROJECT	AZ 511-A
J.O. NO.	RETAINED
CONST. SHT	OF
CA. SCHM.	
TWP 1S / RGE 2E / SEC 31	
TAX DIST.	
AS BUILT DATE	

TAX CODES	
CITY	CO
ESU	FIRE
HOSP	SCH
SPC	ST
KOM42142	

POLE OR PED NO.	POLE OR PED	POLE YEAR	POLE OWN.	BFC25-26	BFC50-26
1	(SAI)			(2.083)	(0.814)
				(2.083)	(0.814)

POLE OR PED NO.	SUB NO.
1	386
1	388
1	388A
1	390
1	400
1	402
1	404
1	406
1	408
1	432
1	434
1	436
1	438
1	440
1	442
1	444
1	446
1	448

MISC. NOTES

TAB SHEET 1 of 1